



Antioch Toll Plaza (04 - CC - 160 – PM 0.70)
Carquinez Toll Plaza (04 - CC - 80 – PM 0.63)
Dumbarton Toll Plaza (04-Ala-84 – PM 3.21)
Richmond-San Rafael Toll Plaza (04-CC-580 – PM 6.13)
San Mateo-Hayward Toll Plaza (04-Ala-92 – PM 2.59)
San Francisco-Oakland Toll Plaza (04 - Sol - 80 – PM 1.99)
Contract No. BATA-0006
EA 04-TBD

INVITATION FOR BIDS

Contract Documents NOTICE TO CONTRACTORS AND SPECIAL PROVISIONS

TOLL PLAZAS IMPROVEMENTS - CHANGEABLE MESSAGE SIGN (CMS) INSTALLATION PROJECT

Issued for Bid MARCH 15, 2010

For use in Connection with Standard Specifications **Dated May 2006**, Standard Plans **Dated May 2006** of the California Department of Transportation, and the plans entitled "TOLL PLAZA IMPROVEMENTS"

**BAY AREA TOLL AUTHORITY
Joseph P. Bort MetroCenter
101 Eighth Street
Oakland, California 94607-4700**

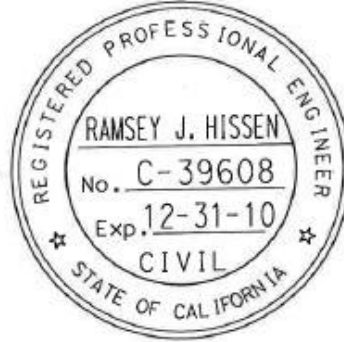
BAY AREA TOLL AUTHORITY Contract No. BATA-0006

The special provisions contained herein have been prepared by or under the direction of the following Registered Persons.

ROADWAY / TRAFFIC



REGISTERED CIVIL ENGINEER



STRUCTURES



REGISTERED STRUCTURE ENGINEER



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SECTION 1. INVITATION FOR BID

LETTER OF INVITATION

**For
TOLL PLAZA IMPROVEMENTS - CHANGEABLE MESSAGE SIGN (CMS)
INSTALLATION PROJECT**

Dear Contractor:

The Bay Area Toll Authority (BATA) invites your firm to respond to this Invitation for Bid (IFB) for:

**TOLL PLAZA IMPROVEMENTS - CHANGEABLE MESSAGE SIGN (CMS)
INSTALLATION PROJECT**

BATA is soliciting bids for the construction of **TOLL PLAZA IMPROVEMENTS - CHANGEABLE MESSAGE SIGN (CMS) INSTALLATION PROJECT** at the Antioch, Carquinez, Richmond-San Rafael, Dumbarton, San Francisco-Oakland and San Mateo-Hayward bridges (see description of project in Section 2-2, General Description of Work). The project is part of the improvements described in BATA's FasTrak® Electronic Toll Collection Strategic Plan 2009 Update, dated May 24, 2009.

This letter, together with Contract Documents/Special Provisions, Bid Forms and Project Plans comprise the IFB for this project. Responses to the IFB are to be submitted in accordance with the instructions stated herein.

Bid Submission

Interested bidders must submit their bids in sealed envelopes by 4:00 p.m. on April 5, 2010. **Proposals received after that date and time will not be considered. All bids must be completed and submitted on the enclosed Bid Forms, in Section 5 of this IFB, in order to be considered.**

BATA will compile a list of intended bidders for this IFB. To receive any addenda to this IFB, you must notify the Project Manager in writing of your intent to submit a bid (e-mail or fax is acceptable) at least two week prior to the due date for bids.

BATA Point of Contact

A submitted proposal shall be considered a firm offer to provide the services described for a period of one hundred twenty (120) days from the date of submittal.

Proposals and all inquiries relating to this RFP shall be submitted to the Project Manager at the address shown below. E-mail inquiries may be directed to <Sbaker@mtc.ca.gov>.

Stephen Baker, Project Manager
Bay Area Toll Authority
Joseph P. Bort MetroCenter
101 Eighth Street
Oakland, CA 94607-4700
510/817-5892

Bid Guaranty

Bids must be accompanied by a bid guaranty in the form of a cashier's check, a certified check, or a bid bond executed by an admitted surety insurer ("A 10" Rating or better), in the amount of 10% of the bid amount, payable to BATA. Such check or bond shall be given as a guaranty that the Bidder will, within ten (10) days of being requested to do so by BATA, enter into a contract and provide the required performance and payment bonds. If a Bidder's bond is furnished, it must conform the form provided with the bid documents herein.

If the Bidder to whom the work has been awarded refuses or fails to accept the contract and/or provide the required bonds within the specified time, the check shall be forfeited to BATA or the principal and surety on the bond shall be liable to BATA for the principal amount thereof in accordance with its terms. Bidder guarantees will be held until the contract has been finally executed, after which all Bidders' guarantees except any guarantees which have been forfeited, will be returned to the respective Bidders whose bids they accompany, but in no event will Bidder's securities be held by BATA beyond one hundred twenty (120) days from the time set for receiving bids.

References

Bidders must provide **at least three (3) references** for work performed by the bidder or bidder's subcontractor for work similar to the work described in this IFB. The reference information should include:

- 1) Name, address, contact person, email address, and telephone number of client.
- 2) Description of work performed that is similar to the work requested in this IFB, including contract amount and construction/installation start and completion date.
- 3) Bidder or bidder's subcontractor role in the construction and installation services provided, including key personnel. BATA may request any additional information to substantiate the bidder's references, as it deems appropriate.

Pre-Bid Conference

A pre-bid conference will be held on Monday March 22, 2010 at 10 am PST at BATA offices (Joseph P Bort Metro Center, 101 Eighth St, Oakland CA, 94607, Third Floor).

Specifications and Schedule

The specifications and schedule for this project are described herein. The IFB also contains substantive requirements with which Bidders must fully comply in order to guarantee responsiveness.

The time of completion for all construction work shall be **SEVENTY-ONE (71) calendar days**, commencing on the sixth **(6) calendar day** following issuance of the Notice of Award by BATA.

Bid Evaluation

Bids will be initially evaluated for responsiveness and adherence to the IFB. Quality and customer service are of the highest importance. In order to ensure superior service, references will be checked, and bidders may be required to provide additional information verifying their experience.

A contract, if awarded, will be to the responsible bidder submitting the lowest responsive bid, as indicated in the "Total Contract Price" space on the Bid Form #1 Schedule of Quantities and Prices in Section 5.

Performance and Labor & Materials Payment Bonds

Prior to contract award, BATA will require both a Performance and Labor & Materials Payment Bond, executed by an admitted surety insurer with Best Guide of A7 or better and issued by a surety acceptable to BATA. Each bond shall be in a sum not less than 100% of the Total Contract Price, as described in Section 6, SC 3.1 (Payment Bond) and SC 3.2 (Performance Bond), of this IFB.

Bidder Selection Timetable

Monday March 22, 2010, 10 am.	Pre-Bid Conference
Wednesday, March 29, 2010.	Deadline for requests for clarification or exception
Wednesday, April 5, 2010, 4:00 p.m.	Closing date & time for receipt of bids & bid opening
Wednesday, April 14, 2010.	BATA Oversight Committee consideration of recommendation for award
Tuesday, April 14, 2010 (approximate).	Issuance of Notice of Award

General Conditions

BATA reserves the right to award a contract or to reject all bids.

A signed BATA Construction Agreement mailed or delivered to a particular bidder shall constitute a binding contract, which incorporates this IFB and its addenda, if any, and all documents referenced herein, any deviations from the specifications expressly accepted by BATA, and all terms and conditions of the Construction Agreement.

In accordance with California Public Contract Code Section 22300, Contractor may substitute securities for any money withheld under **Section 7.0 General Conditions**. At Contractors request and expense, securities equivalent to the amount withheld shall be deposited with BATA, or with a state or federally chartered bank as the escrow agent, who shall then pay such monies to Contractor. Upon satisfactory completion of the contract, the securities shall be returned to Contractor.

Authority to Commit BATA

The Executive Director of BATA will recommend the successful bidder to the BATA Oversight Committee, which will commit BATA to the expenditure of funds in connection with this IFB.

Thank you for your participation.

Sincerely,

Steve Heminger
Executive Director

SH: SB

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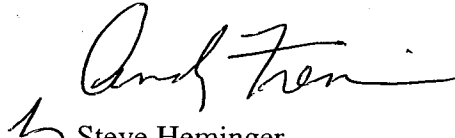
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Thank you for your participation.

Sincerely,


Steve Heminger
Executive Director

SH: SB

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SECTION 2. FORWARD

2-1 Bay Area Toll Authority

There are seven state-owned toll bridges (Antioch, Benicia-Martinez, Carquinez, Richmond-San Rafael, Dumbarton, San Mateo Hayward and the San Francisco-Oakland Bay Bridge) that are owned and operated by the California Department of Transportation (Caltrans) in the San Francisco Bay Area. State-owned toll bridge operations and capital improvement projects are funded by toll revenues, which are administered by the Bay Area Toll Authority (BATA).

In May 2009, BATA adopted the FasTrak® Strategic Plan 2009 Update, which lays out a comprehensive strategy for the implementation of improvements for the FasTrak® program update, including supporting infrastructure improvements, implementing a comprehensive marketing program to inform motorists of the benefits of the program, and increasing the ease for motorists to obtain a FasTrak® toll tag.

2-2 General Description of Work

At the State Owned Bridge toll plazas and administration buildings, the work consists of removal of Extinguishable Message Signs (EMS) and static sign panels and installation of Changeable Message Signs (CMS), conduit, cables and associated facilities as required to operate the CMS system. Toll booth indicator light controls will be modified. The new CMS will be furnished by BATA, as specified herein.

2-3 Description of the Contracting Process

The procedure that will be followed during the period between BATA's determination of the successful Bidder and its issuance of a Notice to Proceed consists of the steps listed and explained below:

- Issuance of Notice of Award (NOA)
- Signing of Construction Agreement by successful Bidder
- Performance Bond, Payment Bond and Insurance Certificate(s)
- Execution of Contract by BATA
- Issuance of Notice to Proceed

Notice of Award. After Bids are opened at the time and place stipulated, the contract will be awarded to the lowest responsive and responsible Bidder subject to the approval of the BATA Oversight Committee as well as BATA's right to reject any or all bids. BATA reserves the right to award a contract or to reject all bids. No Bidder may withdraw its bid for the period of days stipulated on the Bid Form after the date set for the Bid Opening. The Bid shall be subject to acceptance by BATA during this period.

Promptly upon BATA's approval of the award of the Contract, BATA will issue a "Notice of Award" (NOA) letter to the successful Bidder. Included with the NOA will be two originals of **Construction Agreement** and one original of the following:

- **Performance Bond** in the amount of 100% of the Total Contract Amount, to guarantee faithful performance of the work under the Contract, including the replacing of or making acceptable, any defective materials or faulty workmanship.
- **Payment Bond** in the amount of 100% of the Total Contract Amount, to inure to the benefit of persons performing labor or furnishing materials in connection with the work of the proposed contract. This bond shall be maintained in full force and effect until all work under the contract is completed and accepted by BATA, and until all claims for materials and labor have been paid.

Within **six (6) calendar days** from the date of NOA, the successful Bidder shall return executed copies of these documents. Within this same period, Bidder shall furnish Certificates of Insurance as more fully described below.

Both the Performance Bond and the Payment Bond shall be issued by a surety company(ies) acceptable to BATA with a Best Guide Rating of A+7 or better and authorized to execute such in the State of California.

Should any surety or sureties be deemed unsatisfactory at any time by BATA, notice will be given Contractor to that effect, and Contractor shall forthwith substitute a new surety or sureties satisfactory to BATA, at Contractor's expense.

All alterations, time extensions, extra work, additional work or any other changes authorized in the Contract, may be made without notice to, or securing the prior consent of, the surety or sureties on the Performance or Payment Bonds.

Certificates of Insurance. Bidder shall furnish original certificates showing evidence that the insurance coverages specified in the Special Conditions herein have been obtained and are in force. All certificates shall provide that not less than sixty (60) calendar days written notice shall be given to BATA and any additional insureds in the event of cancellation, non-renewal or material change in the policy.

Forfeiture of Bid Security. Failure of the Bidder to whom the Notice of Award was issued to sign the Construction Agreement and submit all of the documents required within **six (6) calendar days** shall be just cause for the annulment of the award and forfeiture of Bidder's security.

Return of Bid Security. If the Bid is not accepted by BATA within the period of days stipulated on the Bid Form after the date set for Bid Opening, or if the Bidder to whom the Contract is awarded executes and delivers to BATA the required documents, then the Bidder's Bond, cash, or the amount of the certified or cashier's check shall be returned to all bidders.

Executed Contract. After Contractor's delivery of two (2) signed original Construction Agreements and all required submissions as stipulated above, BATA will sign the Construction Agreement. No agreement between BATA and Contractor shall be in effect until BATA executes the Construction Agreement.

Notice To Proceed. BATA will issue a Notice to Proceed promptly following execution of the Construction Agreement. Contractor shall commence performance of work after receipt of the Notice to Proceed, and shall continuously and diligently prosecute the work to completion on or before the time or times set forth in Section 6, **Special Conditions**. Regardless of the date of the Notice to Proceed, the first day charged shall be the **sixth calendar day** following the date of the Notice of Award. Contractor shall not enter upon nor occupy State property or commence any materials fabrication prior to receiving the Notice to Proceed. Any work performed or expenses incurred by Contractor prior to Contractor's receipt of Notice to Proceed shall be entirely at Contractor's risk.

SECTION 3. INSTRUCTIONS TO BIDDERS

1. Scope of Work

At the State Owned Bridge toll plazas and administration buildings, the work consists of removal of Extinguishable Message Signs (EMS) and static sign panels and installation of Changeable Message Signs (CMS), conduit, cables and associated facilities as required to operate the CMS system. Toll booth indicator light controls will be modified. The new CMS will be furnished by BATA, as specified herein. The new CMS will be furnished by BATA, as specified in Section 6, Special Conditions, .

2. Pre-Bid Conference

A pre-bid conference will be held at the time and place set out in Section 1, **Invitation for Bid (IFB)**. The purpose of this meeting is to inform prospective Bidders and potential subcontractors of subcontracting and material supply opportunities and to receive comments and questions regarding the work and the Contract Documents from attendees.

3. Examination of the Contract Documents

Each prospective Bidder shall carefully examine the Contract Documents and become thoroughly familiar with the terms and conditions contained therein prior to the Bid Opening date. The bid submitted shall include a sum to cover the cost of all items necessary to perform the work as set forth in the Contract Documents. No allowance of any kind will be made to any Bidder because of lack of such examination or knowledge. The submittal of a bid shall be conclusive evidence that the Bidder has made such an examination.

3.1 Definitions. “Definitions and Terms,” of the Standard Specifications and Contract Documents. Whenever in the Standard Specifications, Standard Plans and these contract documents the following terms are used, unless the context otherwise requires, the intent and meaning shall be interpreted as follows:

ACCEPTANCE: The formal written acceptance by BATA of an entire contract that has been completed in all respects in accordance with the plans and specifications and any modifications thereof previously approved.

BASE: A layer of specified material of planned thickness placed immediately below the pavement or surfacing.

BASEMENT MATERIAL: The material in excavation or embankments underlying the lowest layer of subbase, base, pavement, surfacing or other specified layer which is to be placed.

BATA: The Bay Area Toll Authority.

BIDDER: Any individual, firm, partnership, corporation, or combination thereof, submitting a bid for the work contemplated, acting directly or through a duly authorized representative.

BRIDGE: Any structure, with a bridge number, which carries a utility facility, or railroad, highway, pedestrian or other traffic, over a watercourse or over or under or around any obstruction.

CALENDAR DAYS: A calendar day shall be any day including all legal holidays, Saturday and Sunday.

CALTRANS: California Department of Transportation

CONDUIT: A pipe or tube in which smaller pipes, tubes or electrical conductors are inserted or are to be inserted.

CONTRACT: The written agreement covering the performance of the work and the furnishing of labor, materials, tools and equipment in the construction of the work. The contract shall incorporate this IFB, and its addenda, if any, all documents referenced herein, any deviations from the specifications expressed and accepted by BATA, and shall include the notice to contractors, proposal, plans, special conditions, general conditions, applicable Caltrans Standard plans and Specifications, and contract bonds; also any and all supplemental agreements amending or extending the work contemplated and which may be required to complete the work in a substantial and acceptable manner. Supplemental Agreements are written agreements covering alterations, amendments or extensions to the contract and include contract change orders.

CONTRACTOR: The person or persons, firm, partnership, corporation, or combination thereof, private or municipal, who have entered into a contract with the Bay Area Toll Authority.

CULVERT: Any structure, other than a bridge, which provides an opening under a roadway for drainage or other purposes.

DAYS: Unless otherwise designated, days as used in the specifications will be understood to mean calendar days.

DEPARTMENT: California Department of Transportation, unless with respect to the Standard Plans and Standard Specifications the context requires that Department mean Bay Area Toll Authority (BATA).

DEPARTMENTS OR OFFICERS: Wherever departments or officers are referred to herein, Department staff are meant for the purpose of these Contract Documents, unless with respect to the Standard Plans and Standard Specifications the context requires that Department means (BATA).

DETOUR: A temporary route for traffic around a closed portion of a road.

DIRECTOR OR DIRECTOR OF TRANSPORTATION: The Director of Congestion Management and Highway Programs or his/her duly authorized representatives.

DIVIDED HIGHWAY: A highway with separated traveled ways for traffic, generally in opposite directions.

ENGINEER: The Resident Engineer.

FEDERAL AGENCIES: Whenever, in the specifications, reference is made to any Federal agency or officer, the reference shall be deemed made to any agency or officer succeeding in accordance with law to the powers, duties, jurisdiction and authority of the agency or officer mentioned.

FIXED COSTS: Any necessary labor, material and equipment costs directly expended on the item or items under consideration that remain constant regardless of the quantity of the work done.

FRONTAGE ROAD: A local street or road auxiliary to and located generally on the side of an arterial highway for service to abutting property and adjacent areas and for control of access.

GRADING PLANE: The surface of the basement material upon which the lowest layer of subbase, base, pavement, surfacing or other specified layer is placed.

HIGHWAY: The whole right of way or area that is reserved for and secured for use in constructing the roadway and its appurtenances.

LABORATORY: The established Laboratory authorized by the Engineer to test materials and work involved in the contract.

LEGAL HOLIDAYS: Those days designated as State holidays in the Government Code.

LIQUIDATED DAMAGES: The amount prescribed in the contract documents, to be paid to BATA or to be deducted from any payments due or to become due the Contractor for each day's delay in completing the whole or any specified portion of the work beyond the time allowed in the contract documents.

MANUAL OF TRAFFIC CONTROLS: The Caltrans Department of Transportation publication entitled "MANUAL OF TRAFFIC CONTROLS for Construction and Maintenance Work Zones." This manual may be obtained from Caltrans Publications.

MEDIAN: That portion of a divided highway separating the traveled ways for traffic in opposite directions including inside shoulders.

NOTICE OF AWARD (NOA): Written notification issued by BATA awarding the contract is anticipated three (3) working days after the BATA Board awards the contract. Unless notified otherwise by BATA, the first charged day will be twenty (20) calendar days following this notification.

NOTICE OF CLAIM: Notification sent to BATA from the contractor for time extension, payment of money or damages arising from work done by or on behalf of, the contractor

pursuant to the contract and payment of which is not otherwise expressly provided for or that the contractor is not otherwise entitled to; An amount of payment which is disputed by BATA.

NOTICE TO PROCEED (NTP): Notification to the contractor to commence construction.

OVERSIGHT ENGINEER: The assigned representative of the California Department of Transportation that is duly authorized to oversee work covered by these specifications. The Oversight Engineer will have authority to stop work at any time there is a risk to public safety or when the work appears to be performed in an unsafe manner.

OWNER FURNISHED MATERIALS: Bay Area Toll Authority furnished materials.

PAVEMENT: The uppermost layer of material placed on the traveled way or shoulders. This term is used interchangeably with surfacing.

PLANS: The official project plans, Standard Plans, profiles, typical cross sections, working drawings and supplemental drawings, or reproductions thereof, which show the location, character, dimensions and details of the work to be performed. These documents are to be considered as a part of the plans.

PROCESSING: Any operation or operations of whatever nature and extent required to produce a specified material.

RESIDENT ENGINEER: Authorized representative for BATA, also, identified as the Engineer.

RESIDENT INSPECTOR: Resident Engineer or his authorized representative.

ROADBED: The roadbed is that area between the intersection of the upper surface of the roadway and the side slopes or curb lines. The roadbed rises in elevation as each increment or layer of sub-base, base, surfacing or pavement is placed. Where the medians are so wide as to include areas of undisturbed land, a divided highway is considered as including 2 separate roadbeds.

ROADWAY: That portion of the highway included between the outside lines of sidewalks, or curbs, slopes, ditches, channels, waterways, and including all the appertaining structures, and other features necessary for proper drainage and protection.

SHOULDERS: The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

SPECIAL PROVISIONS: The special provisions are specific clauses setting forth conditions or requirements peculiar to the work. References to these can include BATA Special Conditions, General Conditions.

SPECIFICATIONS: The directions, provisions and requirements contained in these Contract documents.

STANDARD PLANS: The Standard Plans of the State of California Department of Transportation.

STANDARD SPECIFICATIONS: The Standard Specifications of the State of California, Department of Transportation.

STATE: State of California, unless with respect to the Standard Plans and Standard Specifications the context requires that Department mean Bay Area Toll Authority (BATA).

STATE CONTRACT ACT: The applicable portions of the Public Contract Code. The provisions of this act and other applicable laws form and constitute a part of the provisions of this contract to the same extent as if set forth herein in full.

SUBBASE: A layer of specified material of planned thickness between a base and the basement material.

SUBGRADE: That portion of the roadbed on which pavement, surfacing, base, subbase, or a layer of any other material is placed.

SUBSTRUCTURE: All that part of the bridge below the bridge seats, tops of piers, haunches of rigid frames, or below the spring lines of arches. Backwalls and parapets of abutments and wingwalls of bridges shall be considered as parts of the substructure.

SUPERSTRUCTURE: All that part of the bridge except the bridge substructure.

SURFACING: The uppermost layer of material placed on the traveled way, or shoulders. This term is used interchangeably with pavement.

TRAFFIC LANE: That portion of a traveled way for the movement of a single line of vehicles.

TRAVELED WAY: That portion of the roadway for the movement of vehicles, exclusive of shoulders.

WORK: All the work specified, indicated, shown or contemplated in the contract to construct the Improvement, including all alterations, amendments or extensions thereto made by contract change order or other written orders of the Engineer.

WORKING DAYS: Refer to GC-30, "Time of Completion", of Section 7, General Conditions.

3.2 Abbreviations - Each abbreviation signifies the following:

Abbreviation	Term
AAN	American Association of Nurserymen.
AASHTO	American Association of State Highway and Transportation Officials.
AISC	American Institute of Steel Construction.
AISI	American Iron and Steel Institute.
ANSI	American National Standards Institute.
APHA	American Public Health Association.
API	American Petroleum Institute.
AREA	American Railway Engineering Association.
ASME	American Society of Mechanical Engineers.
ASTM	American Society for Testing and Materials.
AWG	American Wire Gage.
AWPA	American Wood-Preservers' Association.
AWS	American Welding Society.
AWWA	American Water Works Association.
EIA	Electronic Industries Association.
IEEE	Institute of Electrical and Electronics Engineers.
NEMA	National Electrical Manufacturers Association.
UL	Underwriters' Laboratories Inc.

3.3 Units of Measurement Some of the symbols for units of measurement used in the specifications and in the Summary of Quantities and Prices are defined as follows. The symbols for other units of measurement used in the specifications are as defined in American Society for Testing and Materials (ASTM) Designation: E-380, or in the various specifications and test referenced in the specifications

Bay Area Toll Authority
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Symbols as used in the Specifications	Symbols as used in the Engineer's Estimate	Definitions
A	—	amperes
	ACRE	acre
	CF	cubic foot
	CY	cubic yard
—	EA	each
g	—	gram
ksi	—	kips per square inch
	GAL	gallon
h	H	hour
	LB	pound
—	LS	lump sum
	LF	linear foot
	LNMI	lane mile
	MFBM	thousand foot board measure
	MI	mile
	MSYD	thousand station yard
Ω	—	ohm
pcf	—	pounds per cubic foot
s	—	second
	STA	100 feet
	SQFT	square foot
	SQYD	square yard
	TAB	tablet
ton	TON	2,000 pounds
W	—	watt
V	—	volt

4. Examination of Site and Existing Conditions

In addition to examination of the Contract Documents, each prospective Bidder shall, prior to the Bid Opening, become fully informed regarding all existing and expected site conditions that might in any way affect the cost or the time of performance of the work. Any failure of the prospective Bidder to fully investigate the site and inform itself of existing and anticipated site conditions shall not relieve such Bidder from responsibility for estimating properly the cost or difficulty of performing the work.

Prospective bidders may make arrangements to visit the project sites by contacting the BATA Project Manager.

5. Addenda to Contract Documents

BATA reserves the right to make changes in the Contract Documents as it may deem appropriate up to the time set for opening of bids. Any and all changes in the Contract Documents shall be made by written Addendum, which shall be issued by BATA at <http://www.mtc.ca.gov/jobs/>. All potential bidders are responsible for checking the BATA website for any addenda to the bid document.

If such Addenda require changes in quantities or might affect the prices bid, or both, the date set for opening of bids may be postponed by such number of days as in the opinion of BATA shall enable Bidders to revise their bids.

Failure to acknowledge receipt of all Addenda may cause the bid to be considered non-responsive to the Contract Documents. Bidder certifies that the Contract Documents and Addenda thereto have been thoroughly read and that there are no misunderstandings as to the meaning, purpose or intent of any provision in the Contract Documents as modified by those Addenda.

6. Prevailing Wage Rates

Pursuant to appropriate Sections of the Labor Code of the State of California, the Director of the California Department of Industrial Relations has ascertained the general prevailing rate of wages (which rate includes employer payments for health and welfare, vacation, pension, and similar purposes) applicable to the work to be performed under this Contract, for straight time, overtime, Saturday, Sunday and holiday work.

Workmen employed in the work must be paid at the rates at least equal to the prevailing wage. If Contractor uses a craft or classification not shown on the prevailing wage determinations, Contractor may be required to pay the wage rate of that craft or classification most closely related to it as shown in the general determinations effective at the time of Contract award.

In the performance of the work specified in this Contract, the Prime Contractor and all subcontractors shall be responsible for compliance with California Labor Code Sections 1776 (Payroll records, retention, inspection, noncompliance penalties, rules and regulations) and 1777.5 (Employment of registered apprentices, wages, standards, number, apprenticeable craft or trade, exemptions, contributions).

7. Preparation and Submittal of Bid

The Bidder shall prepare its bid in strict accordance with all of the requirements of the Contract Documents and any addenda thereto. In order to receive consideration, all bids shall comply with the following instructions:

7.1 Bids shall be submitted on the forms provided in these Contract Documents in signed original. Bids submitted in any other form may be considered non-responsive and rejected.

7.2 Blank spaces in each bid form shall be properly filled in, and the phraseology thereof shall not be changed. Any conditions or limitations made to the items mentioned therein may

be cause for rejection. Alterations by erasure or interlineation must be explained or noted in the bid over the signature of the Bidder.

7.3 No telegraphic or FAX bid or telegraphic or FAX modification of a bid will be considered. No bids received after the time fixed for receiving them will be considered. Late bids will be returned to the Bidder unopened.

7.4 All bids shall be enclosed in a sealed envelope bearing the Contract Number, the title of the project, the date and hour of the opening, and the name of the Bidder. Bids shall be addressed to the Project Manager, Bay Area Toll Authority, and shall be delivered to BATA Office at Joseph P. Bort MetroCenter, 101 Eighth Street, Oakland, CA 94607-4700 no later than the time scheduled for Bid Opening. It is the sole responsibility of the Bidder to see that its bid is received in a timely manner.

7.5 Bids shall include full compensation for furnishing all labor, material, tools, and equipment and doing all the work complete in place in accordance with the requirements of the Contract. Bid prices shall include all applicable taxes, freight charges and other applicable fees of any kind.

7.6 The quantities given in the Schedule of Quantities and Prices for which unit prices are asked to be bid are approximate only, being given as a basis for the comparison of bids, and BATA does not, expressly or by implication, represent that the actual quantities required will correspond therewith, but reserves the right to increase or decrease the quantity of any class or portion of the work, or to omit portions of the work, as BATA may deem necessary or advisable.

7.7 The Bidder shall show the Contract number and title on its bid and on all correspondence.

7.8 Wherever in this Bid an amount is stated in both words and figures, in case of discrepancy between words and figures the words shall prevail. If all or any portion of the Bid is required to be given in unit prices and totals and a discrepancy exists between any such unit prices and totals so given, the unit prices shall prevail. If the Bid contains an arithmetic error in the computation of unit price extensions or in the summation of Bid item totals, BATA will correct and revise the Total Contract Price accordingly. BATA will not make any changes on the total shown for "lump sum" items.

7.9 The successful Bidder shall sign and file with BATA the following certification prior to performing the work of the contract: *"I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract."*

8. Bid Security

Each bid shall be accompanied by a certified or cashier's check, cash, or a Bidder's bond in the sum of not less than **10%** of the Total Contract Price and said checks or bond shall be made payable to the order of the Bay Area Toll Authority. In case the successful Bidder fails to file satisfactory bonds or provide the insurance required by the Contract Documents, or refuses to enter into a Contract within the specified time, it shall forfeit its bid security. If the bid is not accepted by BATA within one hundred twenty **(120) calendar days** after the date set for the opening of bids, or if the Bidder to whom the contract is awarded executes and delivers to BATA the required Contract Forms, then the amount of the cash or the certified or cashier's check shall be returned to the Bidder.

9. Opening of Bids

Bids will be opened and publicly read aloud by BATA at the time and place stated in Section 1, **Invitation to Bid**.

10. Withdrawal of Bid

Any Bidder may withdraw its bid, either personally or by a written request by a duly authorized representative, at any time prior to the scheduled time for opening of bids. However, no Bidder may withdraw its bid for a period of **one hundred twenty (120) calendar days** after the Bid Opening. Bidder's attention is directed to the provisions of the Public Contract Code Sections 5100 to 5108 regarding relief of bidders.

11. Conditional Bids

Conditional bids, or those which take exception to the Contract Documents, will be considered non-responsive and will be rejected.

12. Single Bid Response

If only one bid is received in response to the Invitation to Bid, a detailed cost proposal may be required of the single Bidder. A cost/price analysis and evaluation and/or audit will be performed of the cost proposal in order to determine if the price is fair and reasonable.

13. Award or Rejection of Bids

The award of the contract to the successful Bidder will be made within one hundred twenty **(120) calendar days** after the opening of bids. If the first Bidder selected as a successful Bidder refuses or fails to execute the contract, BATA may award the contract to the second successful Bidder selected as provided herein and such an award, if made, will be made within one hundred twenty **(120) calendar days** after the opening of the bid proposals. If the second successful Bidder refuses or fails to execute the contract, BATA may award the contract to the third successful Bidder selected as above provided and such an award, if made, will be made within one hundred twenty **(120) calendar days** after opening of the bid proposals. The periods of time specified above within which the award of contract may be made shall be subject to an extension for such further period as may be agreed upon in writing between BATA and the Bidder concerned. BATA reserves the right to reject any or all bids and to waive any informality in the bids or in the bid process. Obvious cases of bid unbalancing may be cause for rejection.

BATA is in the process of obtaining an Encroachment Permit from Caltrans. If after receipt of the bids for the project an Encroachment Permit has not been obtained, BATA reserves the right to reject all bids and re-advertise the project or extend the award period as agreed in writing between BATA and the Bidder.

14. Basis of Award

The criteria for determining the successful Bidder will include the Bidder's responsiveness to the requirements of the Contract Documents, Bidder's responsibility and price. Any Bidder may be required to furnish evidence satisfactory to BATA that it and its proposed subcontractors have sufficient means and experience in the type of work called for in the Contract Documents to assure completion of the Contract in a satisfactory manner. Award, if made, will be to the lowest responsible and responsive Bidder, based on the Total Contract Price.

15. Protest Procedures

The following procedures shall be used by Bidders seeking review of the Contract Documents or the Contract process:

15.1 General - Bidder protests shall be addressed to the Bay Area Toll Authority, Attention: Stephen Baker, and clearly marked "Bid Protest" on the outside of the envelope.

15.2 Protest of Specifications. Prospective bidders may submit written protest of items in the Contract Documents on the grounds that the specifications are biased, unduly restrictive, discourage competition, or do not comply with state or local law or regulation no later than seven (7) calendar days prior to the date bids are due. Such protests will be reviewed by BATA and responded to prior to bid opening. If appropriate, the time of bid opening will be extended to accommodate any changes in the IFB.

15.3 Selection Disputes. A bidder may protest the selection of a Contractor on the grounds that BATA procedures, or applicable provisions of state or local law, have been violated or inaccurately and/or inappropriately applied by BATA by submitting to the Project Manager a written explanation of the basis for protest within three (3) working days after award or the date the bidder is notified that it was not selected, whichever is later, for objection to Contractor Selection.

Protests of recommended awards must clearly and specifically describe the basis for the protest in sufficient detail for the BATA review officer to recommend a resolution to the BATA Executive Director.

The BATA Executive Director will respond to the protest in writing, based on the recommendation of a staff review officer. Authorization to award a contract to a particular contractor by BATA's Oversight Committee shall be deemed conditional until the expiration of the protest period or, if a protest is filed, the issuance of a written response to the protest by the Executive Director.

Should the protesting proposer wish to appeal the decision of the Executive Director, it may file a written appeal with the BATA Oversight Committee, no later than three (3) working days after receipt of the written response from the Executive Director. The BATA Oversight Committee's decision will be the final agency decision.

16. Public Records

This IFB and any material submitted by a bidder in response to this IFB are subject to public inspection under the California Public Records Act (Government Code Section 6250 *et seq.*), unless exempt by law.

SECTION 4. CONTRACT FORMS

- 1. Construction Agreement ***
- 2. Performance Bond ***
- 3. Payment Bond ***
- 4. Sample Insurance Certificate**
- 5. Alternate IRS Form W-9**

*** Form must be acknowledged by a Notary**

Return ALL Contract Forms To:

Stephen Baker

Joseph P. Bort MetroCenter
101 Eighth Street
Oakland, California 94607-4700
Direct Phone: (510) 817-5892
Main Phone: (510) 817-5700
Fax: (510) 817-5848

PLEASE NOTE:

It is not necessary to complete these forms to bid on this project. But the Bidder who is awarded the Contract will be required to execute all Contract Forms.

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CONTRACT FORM #1

CONSTRUCTION AGREEMENT

This Agreement is entered into between the Bay Area Toll Authority ("BATA") and _____ ("Contractor") as of the date set out below.

BATA and Contractor agree as follows:

- 1. Scope of Work.** Contractor shall provide all labor, materials, tools, equipment and incidentals necessary to perform the work described as

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Toll Plazas Improvements - Changeable Message Sign (CMS) Installation Project

in a satisfactory and workmanlike manner and in accordance with the provisions of the Contract Documents.

- 2. Compensation.** Full compensation to Contractor for the complete and satisfactory performance of the work under this Agreement, in strict compliance with all of the provisions of the Contract Documents, and for Contractor's payment of all obligations incurred or applicable to performance of the work, shall be the Total Contract Price shown in the Schedule of Quantities and Prices attached hereto as this amount may be adjusted in accordance with other provisions of the Agreement. Payment of this compensation will be made by BATA to Contractor in accordance with the appropriate payment provisions of the Agreement.
- 3. Contract Documents – Order of Precedence.** The following sections of the Contract Documents are incorporated by reference into this Construction Agreement:

Order of Precedence (Highest order listed first)

Section 1.0 through 4.0	Contract Forms and Agreement
Section 5.0	Bid Forms
Section 6.0	Special Conditions
Section 7.0	General Conditions
Section 10	Contract Details
Appendix A	Contract Drawings and Plans
Caltrans Standard Plans	Dated May 2006
Caltrans Standard Specifications	Dated May 2006

These documents are essential parts of the agreement between the parties and are intended to be complementary and to describe and provide for a complete work. In the event of any discrepancy between any drawing and the dimensions written thereon, the dimensions shall be taken as correct. Detail drawings shall prevail over general drawings. In the event of any other conflict among the documents, precedence shall be given in the order listed above.

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- 4. Quality of Work.** Where the plans or specifications describe portions of the work in general terms, but not in complete detail, it is understood that only the best general practice is to prevail and that only materials and workmanship of the first quality are to be provided.
- 5. Time of Performance.** Contractor shall commence work under the Agreement immediately upon issuance by BATA of a Notice to Proceed and shall complete all of the work under the Agreement by the dates specified in **Section 6.0 Special Conditions**. The issuance of a Notice to Proceed is contingent upon Contractor's submittal of proper insurance certificates, and executed Construction Agreement no later than **six (6) working days** following the date of BATA's Notice of Award. The first chargeable day under this Agreement shall be the **sixth calendar day** following the date of BATA's Notice of Award.
- 6. Entire Agreement.** This Agreement constitutes the entire agreement between BATA and Contractor respecting the subject matter hereof. All other agreements, understandings and communications between the parties hereto are deemed to be merged into and superseded by the provisions of this Agreement. No modification or change to this Agreement shall have any force or effect unless it is in writing and expressly referred to as being a Change Order to this Agreement.
- 7. Responsible Conduct.** Contractor shall at all times deal in good faith and truthfully with BATA. Contractor shall submit documentation to BATA, including reports, claims, requests for change orders, equitable adjustment, contract modifications or requests of any kind seeking increased compensation or decreases of an obligation on this contract only in good faith and upon an honest evaluation of the underlying circumstances and an honest calculation of any amount being sought. A violation of this standard of conduct will subject the contractor to being deemed "non-responsible" and potentially ineligible for future contracts with BATA.

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IN WITNESS WHEREOF two identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by BATA and Contractor respectively, on the dates set out below.

BAY AREA TOLL AUTHORITY

CONTRACTOR

Steve Heminger, Executive Director

Name, Title

Date

Date

Contractors License No.

Class/Expiration Date

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CONTRACT FORM #2

PERFORMANCE BOND FOR PUBLIC WORKS

KNOW ALL PEOPLE BY THESE PRESENTS: That

WHEREAS, the Bay Area Toll Authority ("BATA") has awarded to

("Principal") a contract described as:

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Toll Plaza Improvements - Changeable Message Sign (CMS) Installation Project

and all of the Contract Documents attached to or forming a part of said Agreement are hereby referred to and made a part hereof; and

WHEREAS, said Principal is required under the terms of said contract to furnish a bond for the faithful performance of said contract,

NOW THEREFORE, we, the Principal and

as Surety, are held and firmly bound unto the Bay Area Toll Authority (hereinafter called "BATA"), in the penal sum of \$ _____, lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

The condition of this obligation is such that if the above-bound Principal, its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the said contract and any alteration thereof made as therein provided, on their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless BATA, its officers, agents, and employees, as therein stipulated, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

And the said Surety for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder shall in any way affect its obligations on this bond, and it does hereby waive notice of any change, extension of time, alteration or additions to the terms of the contract.

In the event suit is brought upon this bond by BATA and judgment is recovered, Surety shall pay all costs incurred by BATA in such suit, including a reasonable attorney's fee to be fixed by the Court.

Bay Area Toll Authority
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IN WITNESS WHEREOF this instrument has been duly executed by Principal and Surety on this _____ day of _____, 2010.

PRINCIPAL:

(Company)

(Signature)

(Name – Please Print)

(Title)

SURETY:

(Company)

(Signature)

(Name – Please print)

(Title)

NOTE: Signatures of those executing for Surety must be acknowledged by a Notary.

NOTE TO SURETY COMPANY:

The following form of acknowledgement should be used. If any other form of acknowledgement is used, there must be submitted a certified copy of unrevoked resolution of authority for the attorney-in-fact.

SURETY COMPANY ATTORNEY-IN-FACT

State of California)

County of _____)

On _____, before me, the undersigned, a Notary Public in and for

the State, personally appeared _____,
known

to me to be the duly authorized Attorney-in-Fact of the corporate Surety named in the within instrument, known to me to be authorized to execute that instrument on behalf of said corporation, known to me to be the person whose name is subscribed to such instrument as the Attorney-in-Fact of said corporation, and acknowledged to me that he (she) subscribed the name of said corporation thereto as Surety, and his (her) own name as Attorney-in-Fact and that said corporation executed the same.

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WITNESS MY HAND AND OFFICIAL

SEAL:

(SEAL)

Notary Public for the State of California

Acknowledgement by Attorney-in-Fact must be attached.
Corporate seals of Principal and Surety must be attached.

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CONTRACT FORM #3

PAYMENT BOND FOR PUBLIC WORKS

KNOW ALL PEOPLE BY THESE PRESENTS: That

WHEREAS, the Bay Area Toll Authority ("BATA") and

("Principal") have entered into a Construction Agreement for the furnishing of all materials, labor, services and transportation necessary, convenient and proper to the performance of

**CONTRACT NO. BATA-0006
Toll Plaza Improvements - Changeable Message Sign (CMS) Installation Project**

and all of the Contract Documents attached to or forming a part of said Agreement are hereby referred to and made a part hereof; and

WHEREAS, said Principal is required by Chapter 5 (commencing at Section 3225) and Chapter 7 (commencing at Section 3247), Title 15, Part 4, Division 3 of the California Civil Code to furnish a bond in connection with said contract;

NOW THEREFORE, we, the Principal and

as Surety, are held and firmly bound unto the Bay Area Toll Authority (hereinafter called "BATA") in the penal sum of \$ _____ in lawful money of the United States of America for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal or its subcontractors, heirs, executors, administrators, successors, or assigns, shall fail to pay any of the persons named in Section 3181 of the California Civil Code, amounts due under the Unemployment Insurance Code with respect to work or labor performed by any such claimant, or for any amounts required to be deducted, withheld and paid over to the Employment Development Department from the wages of employees of the Contractor and Subcontractors pursuant to Section 13020 of the Unemployment Insurance Code with respect to the work and labor, the Surety will pay for the same, in an amount not exceeding the sum hereinabove specified, and also, in case suit is brought upon this bond, a reasonable attorney's fee to be fixed by the court.

This bond shall inure to the benefit of any of the persons named in Section 3181 of the California Civil Code, so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

It is further stipulated and agreed that the Surety on this bond shall not be exonerated or released from the obligation of this bond by any change, extension of time for performance, addition, alteration or modification in, to, or any contract, plans, or agreement pertaining or relating to any scheme or work of improvement hereinabove described or pertaining to or relating to the furnishing of labor, materials, or equipment therefor, nor by any change or modification of any terms of payment or extension of the time for any payment pertaining or relating to any scheme or work of improvement hereinabove described, nor by any rescission or attempted rescission of the contract, agreement or bond, nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or under the bond, nor by any fraud practiced by any person other than the claimant seeking to recover on the bond and that this bond be construed most strongly against the Surety and in favor of all persons for whose benefit such bond is given, and under no circumstances shall Surety be released from liability to those for whose benefit such bond has been given, by reason of any breach of contract between BATA and original contractor or on the part of any obligee named in such bond, but the sole conditions of

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recovery shall be that claimant is a person described in Section 3110 or 3112 of the California Civil Code, and has not been paid the full amount of its claim and that Surety does hereby waive notice of any such change, extension of time, addition, alteration or modification herein mentioned.

IN WITNESS WHEREOF this instrument has been duly executed by Principal and Surety on this _____ day of _____, 2010.

PRINCIPAL:

(Company)

(Signature)

(Name – Please Print)

(Title)

SURETY:

(Company)

(Signature)

(Name – Please print)

(Title)

NOTE TO SURETY COMPANY:

The following form of acknowledgement should be used. If any other form of acknowledgement is used, there must be submitted a certified copy of un-revoked resolution of authority for the attorney-in-fact.

SURETY COMPANY ATTORNEY-IN-FACT

State of California)

County of _____)

On _____, before me, the undersigned, a Notary Public in and for

the State, personally appeared _____, known to me to be the duly authorized Attorney-in-Fact of the corporate Surety named in the within instrument, known to me to be authorized to execute that instrument on behalf of said corporation, known to me to be the person whose name is subscribed to such instrument as the Attorney-in-Fact of said corporation, and acknowledged to me that he (she) subscribed the name of said corporation thereto as Surety, and his (her) own name as Attorney-in-Fact and that said corporation executed the same.

WITNESS MY HAND AND OFFICIAL SEAL:

(SEAL)

Notary Public for the State of California

Acknowledgement by Attorney-in-Fact must be attached.

Corporate seals of Principal and Surety must be attached.

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Certificate of Insurance

CONTRACT FORM #4

ACORD		CERTIFICATE OF INSURANCE				ISSUE DATE:	
PRODUCER INSURANCE AGENCY, INC. 1000 MAIN STREET ANYWHERE, CA 93800			THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW				
INSURED ACCURATE CONSTRUCTION COMPANY 18935 NORTHWESTERN HIGHWAY Oakland, CA 94999			COMPANIES AFFORDING COVERAGE				
			COMPANY A ACME INSURANCE COMPANY				
			COMPANY B DELTA INSURANCE COMPANY				
			COMPANY C SHIFTING SANDS MUTUAL INSURANCE COMPANY				
			COMPANY COMPANY				
COVERAGES							
THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.							
	TYPE OF INSURANCE	POLICY NO.	POLICY EFF. DATE MM/DD/YY	POLICY EXP. DATE MM/DD/YY	ALL LIMITS		
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GEN. LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR.	WTO 00612	07/01/97	07/01/98	GENERAL AGGREGATE PRODUCTS-COMP/OPS AGGREGATE PERSONAL & ADVERTISING INJURY EACH OCCURRENCE		\$2,000,000 \$1,000,000 \$1,000,000 \$1,000,000
B	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS		07/01/97	07/01/98	COMBINED SINGLE LIMIT		\$1,000,000
A	EXCESS LIABILITY <input type="checkbox"/> UMBRELLA <input type="checkbox"/> OTHER THAN UMBRELLA FORM	XYZ00064	07/01/97	07/01/98	EACH OCCURRENCE \$4,000,000		AGGREGATE \$4,000,000 (Per location)
C	(IF CONTRACT OVER \$75,000) BUILDERS RISK	AZZ57297	07/01/97	07/01/98	ALL RISK		AMOUNT OF CONTRACT
C	WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY	WTC 906221	07/01/97	07/01/98	STATUTORY <input checked="" type="checkbox"/> (Each accident) (Disease-policy limit) (Disease-each employee)		\$1,000,000 \$1,000,000 \$1,000,000
DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS: CERTIFICATE HOLDER IS AN ADDITIONAL INSURED AS RESPECTS THE ABOVE REFERENCED AUTO LIABILITY, GENERAL LIABILITY AND EXCESS LIABILITY POLICIES. COVERAGE AFFORDED TO THE ADDITIONAL INSURED IS PRIMARY AND NOT EXCESS TO OR CONTRIBUTING WITH ANY OTHER INSURANCE OR SELF-INSURANCE MAINTAINED BY THE ADDITIONAL INSURED.							
WAIVER OF SUBROGATION HAS BEEN ENDORSED TO ALL POLICIES AS STATED IN THE CONTRACT DOCUMENTS CERTIFICATE HOLDER IS LOSS PAYABLE AS RESPECTS THE BUILDERS RISK POLICY.							
CERTIFICATE HOLDER BAY AREA TOLL AUTHORITY, ITS OFFICERS, OFFICIALS, EMPLOYEES & VOLUNTEERS Joseph P. Bort MetroCenter 101 Eighth Street Oakland, California 94607-4700 ACORD 25-S (3/90)				CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, EXCEPT 10 DAYS NOTICE FOR NON-PAYMENT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.			
				AUTHORIZED REPRESENTATIVE			

Bay Area Toll Authority
SPECIAL PROVISIONS
TOLL PLAZA IMPROVEMENTS
Contract No. BATA-0006

Contract Form #5

**ALTERNATE
FORM---W9**

**ALTERNATE TO FORM W-9
Bay Area Toll Authority
Payer's Request for Taxpayer
Identification Number and Certification**

Name as shown on account (If joint account, must list and circle the name of the person or entity whose number you enter in part 1 below.)

Business Name _____

Address _____

City, State, and ZIP code _____

List account number(s) here _____

PART 1 Taxpayer Identification Number --- For All Accounts

Enter your taxpayer Identification number in the appropriate box. For most individuals, this is your social security number.

Social Security Number
/ /

or

Employer Identification Number
/ /

PART 2 For Payees Exempt From Backup Withholding (See Instructions on IRS form W-9)

PART 3 Certification

Under penalty of perjury, I certify that:

- (1) The Number shown on this form is my correct Taxpayer Identification Number (or I am waiting for a number to be issued to me), and
- (2) I am not subject to backup withholding either because I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or the IRS has notified me that I am no longer subject to backup withholding.

CERTIFICATION INSTRUCTIONS – You must cross out item (2) above if you have been notified by IRS that you are subject to backup withholding because of underreporting interest or dividends on your tax return. However, if after being notified by IRS that you were subject to backup withholding you received another notification from IRS that you are no longer subject to backup withholding, do not cross out item (2).

Please	Sign	Signature →	Date
--------	------	-------------	------

Please check one box in each section below that best describes your type of organization and the transaction for which we make payment to you.

ORGANIZATION:

- | | |
|---|--|
| <input type="checkbox"/> Individual | <input type="checkbox"/> Corporation |
| <input type="checkbox"/> Two or more Indiv. (Joint) Service | <input type="checkbox"/> Real Estate Agent |
| <input type="checkbox"/> Sole Proprietorship | <input type="checkbox"/> Tax-Exempt Organization |
| <input type="checkbox"/> Partnership | <input type="checkbox"/> Public Entity |

TRANSACTION:

- | |
|---|
| <input type="checkbox"/> Rents (Space & Machine) |
| <input type="checkbox"/> Medical & Health Care |
| <input type="checkbox"/> Other Services (Specify) |
| <input type="checkbox"/> Interest |

Bay Area Toll Authority
SPECIAL PROVISIONS
TOLL PLAZA IMPROVEMENTS
Contract No. BATA-0006

☐ Trust /Estate

☐ Other Organization (Specify)

☐ Goods/Merchandise

☐ Freight

☐ Other Transaction (Specify)

**Bay Area Toll Authority
SPECIAL PROVISIONS
TOLL PLAZA IMPROVEMENTS
Contract No. BATA-0006**

SECTION 5. BID FORMS

**Bay Area Toll Authority
SPECIAL PROVISIONS
TOLL PLAZA IMPROVEMENTS
Contract No. BATA-0006**

- 1. Bid Form, Schedule of Quantities and Prices, Contractor Information**
- 2. Bidder's Bond ***
- 3. Designation of Subcontractors – Fair Practices Act**
- 4. Affidavit of Non-Collusion ****

*** Form must be acknowledged by a Notary**

****Form must be subscribed and sworn to before Notary Public or other Officer**

PLEASE NOTE:

These forms are designed to contain essential information concerning the Bidder and the bid, and must be completed such that they can be read. If any of the completed forms are illegible, BATA may, at its option, declare the entire bid unresponsive.

CONTRACT NO. BATA-0006

TOLL PLAZA IMPROVEMENTS

Issued March 15, 2010

BID FORM #1

Bid Form

CONTRACT NO. BATA-0006

Toll Plaza Improvements - Changeable Message Sign (CMS) Installation Project

FROM: BIDDER'S NAME_____

TO: THE BAY AREA TOLL AUTHORITY, STATE OF CALIFORNIA

In compliance with your **Invitation to Bid** for this project, the undersigned Bidder, being thoroughly familiar with the terms and conditions of the Contract Documents, hereby proposes and agrees fully to perform the work within the time stated and in strict accordance with the Contract Documents.

The Bidder hereby acknowledges receipt of the following Addenda to the Contract Documents:

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Bidder hereby incorporates by reference all provisions of the Contract Documents that follow this Bid Form.

CONTINUED ON NEXT PAGE ➔

Issued March 15, 2010

CONTRACT NO. BATA-0006

TOLL PLAZA IMPROVEMENTS

Issued March 15, 2010

SUBMITTED BY:

Full and Correct Name of Bidder:

Business Address:

Phone: _____

Fax: _____

California Contractor's License:

Number: _____

Class: _____

Expires: _____

CONTRACTOR INFORMATION

The names of all persons as principals interested in the foregoing bid are as follows:

(IMPORTANT NOTICE: If Bidder or other interested person is a corporation, give legal name of corporation, and names of the President and Secretary thereof; if a partnership, give name of the firm, also names of all individual partners composing firm; if Bidder or other interested person is an individual, give first and last names in full. If a Bidder is a joint venture, supply the above information for each joint venture partner.)

CONTRACT NO. BATA-0006

TOLL PLAZA IMPROVEMENTS

Issued March 15, 2010

The person signing this Bid Form for the Bidder certifies that he or she is authorized by the Bidder to do so and that the Bidder shall be bound contractually by that signature.

Signature _____

Name _____
(Print)

Title _____

Date _____

CONTRACT NO. BATA-0006

TOLL PLAZA IMPROVEMENTS

Issued March 15, 2010

BIDDER'S BOND

KNOW ALL PEOPLE BY THESE PRESENTS: That

WHEREAS the undersigned, _____

as Principal and _____

as Surety, are held and firmly bound unto the Bay Area Toll Authority, a political subdivision of the State of California (hereinafter called "BATA") in the penal sum of **10% of the Total Contract Price** of the Principal above named, submitted by said Principal to BATA for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

The condition of this obligation is such that a Bid to BATA for performance of that certain construction described as

CONTRACT NO. BATA-0006

Toll Plaza Improvements - Changeable Message Sign (CMS) Installation Project

has been submitted by Principal to BATA.

NOW THEREFORE, if the aforesaid Principal shall not withdraw said bid within **120 calendar days** after said opening, and shall within the period specified therefore, or if no period be specified, within **six working days** after the prescribed forms are presented to Principal for signature, enter into a written contract with BATA in the prescribed form in accordance with the Bid as accepted, and file two bonds with BATA; a Performance Bond in the amount of **100%** of the Contract Amount to guarantee faithful performance of the work under the Contract and a Payment Bond in the amount of **100%** of the Contract Amount to guarantee payment for labor and materials, as required by law, or in the event of the withdrawal of said Bid within the period specified or the failure to enter into such contract and give such bonds within the time specified, if the Principal shall pay BATA the difference between the amount specified in said Bid and the amount for which BATA may procure the required work, if the latter amount be in excess of the former, together with all costs incurred by BATA in again calling for bids, should that become necessary, then the above obligation shall be void and of no effect, otherwise to remain in full force and effect.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract on the call for Bids, or to the work to be performed thereunder, shall in any way affect its obligation under this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of said Contract or the call for bids, or to the work, or to the specifications.

In the event suit is brought upon this Bond by BATA and judgment is recovered, the Surety shall pay all costs incurred by BATA in such suit, including a reasonable attorney's fee to be fixed by the court in accordance with applicable statutory law.

CONTRACT NO. BATA-0006

TOLL PLAZA IMPROVEMENTS

Issued March 15, 2010

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this _____ day of _____, 2010.

PRINCIPAL:

(Company)

(Signature)

(Name – Please Print)

(Title)

SURETY:

(Company)

(Signature)

(Name – Please print)

(Title)

NOTE: Signatures of those executing for Surety must be acknowledged by a Notary.

NOTE TO SURETY COMPANY:

The following form of acknowledgement should be used. If any other form of acknowledgement is used, there must be submitted a certified copy of unrevoked resolution of authority for the attorney-in-fact.

SURETY COMPANY ATTORNEY-IN-FACT

State of California)

County of _____)

On _____, before me, the undersigned, a Notary Public in and for

the State, personally appeared _____, known to me to be the duly authorized Attorney-in-Fact of the corporate Surety named in the within instrument, known to me to be authorized to execute that instrument on behalf of said corporation, known to me to be the person whose name is subscribed to such instrument as the Attorney-in-Fact of said corporation, and acknowledged to me that he (she) subscribed the name of said corporation thereto as Surety, and his (her) own name as Attorney-in-Fact and that said corporation executed the same.

WITNESS MY HAND AND OFFICIAL SEAL:

(SEAL)

Notary Public for the State of California

Acknowledgement by Attorney-in-Fact must be attached.
Corporate seals of Principal and Surety must be attached.

CONTRACT NO. BATA-0006**TOLL PLAZA IMPROVEMENTS**

Issued March 15, 2010

BID FORM #3

**DESIGNATION OF SUBCONTRACTORS
IN COMPLIANCE WITH THE
SUBLETTING AND SUBCONTRACTING FAIR PRACTICES ACT
CONTRACT NO. BATA-0006**

Bidder: _____

Bidder shall completely fill in the form below for each proposed subcontract in excess of one-half percent of Bidder's Total Contract Price or, in bids for the construction of streets or highways, including bridges, in excess of one-half percent of the Bidder's Total Contract Price or \$10,000, whichever is greater, in compliance with the Public Contract Code of the State of California, Sections 4100-4114.

<u>Name of Subcontractor</u>	<u>City/State</u>	<u>Portion of Work/Bid Item</u>

Total Contract Amount:\$ _____ Amount to be subcontracted: \$ _____

Percentage to be Subcontracted: _____ %

SECTION 6. SPECIAL CONDITIONS

SC-1 Indemnification

Consistent with California Civil Code Section 2782 and except where the injury, loss, damage or expense arises from the sole or active negligence or the willful misconduct of BATA or Caltrans, Contractor agrees to indemnify and hold BATA, Caltrans and their commissioners, directors, officers, employees and agents harmless from all claims, demands, suits, losses, damages, injury, and liability, direct or indirect (including any and all costs and expenses in connection therewith), incurred by reason of any act or omission of Contractor, its officers, agents, employees and subcontractors or any of them, under or in connection with this contract; and Contractor agrees at its own cost expense and risk to defend any and all claims, demands, suits, or other legal proceedings brought or instituted against BATA, Caltrans, or their commissioners, directors, officers, agents, and employees, or any of them arising out of such act or omission, and to pay and satisfy any resulting judgments.

SC-2 Insurance

2.1 Minimum Coverage. Contractor shall, at its own expense, obtain and maintain in effect at all times during the life of this Agreement the following types of insurance against claims, damages and losses due to injuries to persons or damage to property or other losses that may arise in connection with the performance of work under this Agreement, placed with insurers with a Best's rating of A-X or better.

2.1.1 Workers' Compensation Insurance, as required by law, and Employer's Liability Insurance in an amount no less than \$1,000,000 (for bodily injury by accident and by disease (policy limit and each employee)). Such policy shall contain a Waiver of Subrogation endorsement in favor of MTC. Such Workers Compensation & Employers Liability may be waived, if and only for as long as Contractor is a sole proprietor with no employees. Should any bridge work require coverage for the United States Longshore Harbor Workers Act, Contractor agrees to furnish proof of insurance if required.

2.1.2 Commercial General Liability Insurance ("occurrence" form), with a combined single limit of not less than \$1,000,000 for bodily injury and property damage each occurrence, a combined single limit of not less than \$1,000,000 for personal injury and advertising injury, and \$2,000,000 general aggregate applying separately to this project.

2.1.3 Owned, Non-Owned and Hired Automobile Liability Insurance in the amount of \$1,000,000 each accident.

2.1.4 Contractor to carry Umbrella insurance in the amount of \$2,000,000 providing excess limits over Employers Liability, Auto Liability and General Liability.

2.1.5 Property Insurance Contractor at Contractor's expense shall obtain a policy or policies of insurance covering loss or damage, including loss of use, for contractor's own Business Personal Property and materials or property to be purchased and/or installed on behalf of BATA in an amount equal to the full replacement value thereof, as same may exist from time to time. Such policy shall contain a Waiver of Subrogation endorsement in favor of BATA.

Coverage shall be secured for the life of the project, within the definition of "Special Form," and shall include coverage for installation and testing of any equipment that is to be installed or become part of any real property. If such insurance coverage has a deductible clause, the Contractor shall be also liable for the deductible

2.2 Deductibles. Any deductibles or self-insurance retentions over \$10,000 are subject to the approval of BATA.

2.3 Notice of Termination. All Contractor policies shall provide that the insurance carrier shall give written notice to BATA at least 60 days prior to cancellation, non-renewal or material change of coverage in the policy or policies, and shall provide notice of such change to BATA and any other additional insured.

2.4 Additional Provisions. Each policy or policies of insurance described in SC 2.1, above shall contain the following provisions:

2.4.1 Inclusion of BATA, Caltrans, and their Commissioners, directors, officers, representatives, agents and employees, as additional insureds with respect to work or operations in connection with this Agreement. This provision shall only apply to Commercial General Liability Insurance and Automobile Liability Insurance.

2.4.2 Endorsement providing that such Commercial General Liability insurance and Automobile Liability insurance is primary insurance and no insurance of BATA or Caltrans will be called upon to contribute to a loss.

2.5 Claims Made Coverage

If any insurance specified above shall be provided on a claim-made basis, then in addition to coverage requirements above, such policy shall provide that:

2.5.1 Policy retroactive date coincides with or precedes the Contractor's start of work including subsequent policies purchased as renewals or replacements).

2.5.2 Contractor shall make every effort to maintain similar insurance for at least three (3) years following project completion, including the requirement of adding all named insureds.

2.5.3 If insurance is terminated for any reason, Contractor agrees to purchase an extended reporting provision of at least three (3) years to report claims arising from work performed in connection with this Agreement.

2.5.4 Policy allows for reporting of circumstances or incidents that might give rise to future claims.

2.6 Certificates of Insurance. Promptly on execution of this Agreement and prior to commencement of any work hereunder, Contractor shall deliver to BATA Certificates of Insurance verifying the aforementioned coverages. Such certificates shall make reference to all provisions and endorsements referred to above and shall be signed on behalf of the insurer by an

authorized representative thereof. Contractor agrees, upon written request by BATA, to furnish copies of such policies or endorsements, certified by an authorized representative of the insurer. Contractor agrees to furnish to the BATA Project Manager a copy of all Additional Insured endorsements required under the Agreement within sixty (60) days of the Effective Date of the Agreement.

2.7 Disclaimer. The foregoing requirements as to the types and limits of insurance coverage to be maintained by Contractor are not intended to and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by Contractor pursuant hereto, including, but not limited to, liability assumed pursuant to SC-1 of these Special Conditions.

2.8 Subcontractor's Insurance. Contractor shall require each of its subcontractors to provide the aforementioned coverages, unless such coverages are waived or reduced in writing by the BATA Project Manager.

2.9 Work and Materials Insurance The Contractor shall be responsible for all loss or damage, howsoever caused, to the work and materials, until final acceptance by BATA. Accordingly, the Contractor shall also procure and maintain at its own expense Work and Materials insurance including but not limited to:

- Builder's Risk,
- Course of Construction,
- Installation Floater or
- Similar first-party property insurance covering the interest of the Contractor, BATA, and Caltrans as follows:

2.9.1 Coverage shall be provided on an "all-risk" basis. Coverage does not need to include the perils of earth movement and water damage.

2.9.2 Coverage shall be provided on the work and materials which is the subject of this Agreement, whether in process or manufacture or finished, including "in transit" coverage to the final agreed upon destination of delivery, and including loading and unloading operations, and such coverage shall be in force until the work and materials are accepted by BATA.

2.9.3 Coverage shall be in an amount no less than the full replacement value of the finished work and materials with no periodic reporting requirements.

2.9.4 The deductible shall not exceed \$10,000 per occurrence and shall be borne by the Contractor.

Loss, if any, shall be adjustable with and payable to BATA as trustee for all entities having an insurable interest.

SC-3 Contract Bonds

Prior to execution of the Contract, the Contractor shall file with BATA on the forms provided herein, two surety bonds in the amounts and for the purposes noted below, duly executed by a reputable surety company satisfactory to BATA; *provided, however*, that no bonds are required on contracts of \$25,000 or less. Contractor shall pay all premiums and costs relating to required bonds, whether direct or incidental thereto. Both Contractor and surety shall sign each bond.

3.1 Payment Bond. The Payment Bond shall be in an amount of 100% of the Total Contract Price and shall inure to the benefit of persons performing labor or furnishing materials in connection with the work of the proposed Contract. This bond shall be maintained in full force and effect until all work under the Contract is completed and accepted by BATA, and until all claims for materials and labor have been paid.

3.2 Performance Bond. The Performance Bond shall be in an amount of 100% of the Total Contract Price and shall insure the faithful performance by the Contractor of all work under the Contract. It shall also insure the replacing of, or making acceptable, any defective materials or faulty workmanship.

3.3 Surety Requirements. Sureties for necessary bonds (including Bid Bond, Performance Bond and Payment Bond) shall be executed by an admitted surety(ies) insurer acceptable to BATA with a Best Guide Rating of A7 or better and authorized to execute such in the State of California.

Should any surety or sureties be deemed unsatisfactory at any time by BATA notice will be given the Contractor to that effect, and Contractor shall forthwith substitute a new surety or sureties satisfactory to BATA, at the expense of the contractor; *provided, however*, that the time set out in the Notice of Award for submitting bonds shall not be extended thereby. No further payment shall be deemed due or will be made under the Contract until the new sureties qualify and are accepted by BATA.

All alterations, time extensions, extra and additional work, and other changes authorized by the Specifications, or any part of the Contract, may be made without securing consent of the surety or sureties on the contract bonds.

SC-4 Time for Performance

The time limit for completion of all work under the Contract is **Seventy-One (71) calendar days** commencing on the **sixth (6th) calendar day** following the issuance by BATA of a Notice of Award (NOA).

The time limit specified for the completion of the work contemplated herein is considered insufficient to permit completion of the work by the Contractor working a normal number of hours per day or week on a single shift basis. Should the Contractor fail to maintain the progress of the work in conformance with SC-23 "Progress Schedule", additional shifts will be required to

the extent necessary to ensure that the progress conforms to the above mentioned schedule and that the work will be completed within the time limit specified.

Full compensation for any additional costs occasioned by compliance with the provisions in this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefor.

SC-5 Liquidated Damages

The Contractor agrees that its failure to complete the work or any part thereof within the time periods specified above in SC-4, Time of Performance, as such time periods or dates may be revised by Change Order will result in damages being sustained by BATA. Since it is impractical and infeasible to determine the actual amount of such damage, it is further agreed that the Contractor shall pay to BATA, as agreed, fixed and liquidated damages and not as a penalty, the amount specified hereunder for each day of delay or part thereof until such work or part thereof is completed and accepted, and the Contractor and its surety shall be liable for the amount thereof.

BATA may deduct the sum of liquidated damages from progress or final payment(s) due under this Contract as follows:

- **\$2,000 per day for each and every calendar day's delay in completion of all work at the Antioch Bridge after June 19, 2010.**
- **\$2,000 per day for each and every calendar day's delay in completion of all work at the Richmond San Rafael Bridge after June 19, 2010.**
- **\$5,000 per day for each and every calendar day's delay in completion of the project.**

BATA will simultaneously assess liquidated damages for untimely completion of work at the Richmond San Rafael and Antioch Bridges, and will not simultaneously assess liquidated damages for completion of the project.

SC-6 Contract Data Requirements

The Contractor shall submit to BATA the items shown on the Contract Data Requirement List and the Technical Submittals List (both appearing in this Section 6.0, Special Conditions) in compliance with the times and in the number of copies specified therein. Requirements and procedures for preparing and transmitting items shown on the Technical Submittals List shall conform to the following:

6.1 Drawings. The Contractor shall prepare working and shop drawings as required by BATA for the performance of the work. Drawings shall be prepared on a reproducible sheet measuring 22 inches x 34 inches, unless otherwise approved. Each drawing shall have a blank area 5 inches x 5 inches minimum, located above the title block, for the acceptance stamp. The title block shall display the following:

- Contract number and name
- Number and title of drawing

- Date of drawing or revision
- Name of the Contractor and Subcontractor originating drawing
- Clear identification of contents and location of work
- Structural calculations signed and sealed by a California licensed civil engineer, where applicable.

6.2 Detail Drawings. The Contractor shall furnish detail drawings for temporary work and method of proposed construction for the safe and successful completion of the work.

6.3 Submittal. Cover Letter Submittals shall be accompanied by a “Submittal Cover Letter” form neatly and properly filled out. Forms will be furnished by BATA.

6.4 Copies of Drawings. The Contractor shall submit two reproducible and six legible copies of complete and detailed working and shop drawings, which shall be suitable for microfilming, to BATA. Such drawings shall include but not be limited to:

- Fabrication and erection drawings, schedule drawings and manufacturer’s scale drawings. If requested by BATA, Contractor shall furnish calculations and information substantiating the details shown on the drawings satisfactory to BATA.
- Plans for temporary structures, and for such other work as may be required for construction, which does not become an integral part of the completed project. The Contractor shall submit two copies of the calculations and other information needed to describe in detail the temporary structures or systems and their intended use.

All submittals for electrical equipment shall conform to the provisions of the contract. All electrical materials shall be tagged in conformance with the provisions of GC-49, Certificates of Compliance and Testing, before delivery to the work site. Untagged electrical materials will be rejected.

6.5 Time for Submittal. The Contractor shall submit drawings and schedules sufficiently in advance of construction requirements as indicated in SC-51. The Contractor shall also submit six copies of supporting data such as manufacturer’s literature for all items.

The approval of drawings and schedules will be general and shall not be construed as:

- Permitting any departure from contract requirements;
- Offering relief from the responsibility for any errors, or omissions including details, dimensions, and materials;
- Approving departures from details furnished by the Engineer, except as otherwise provided in **Section 10.0 Construction Details**.

6.6 Variations. If drawings show variations from contract requirements because of standard shop practice or for any other reason, such variations shall be described in the letter of submittal.

- BATA may approve or reject any or all variations.

- If variations result in an adjustment to the contract price or time for performance, the adjustment shall be subject to approval by BATA.
- Failure to describe variations shall not relieve the Contractor from the responsibility of executing the work in accordance with the Contract, even though such drawings have been approved.

6.7 Corrections. If corrections to the drawings are required, each print will be marked “MAKE CORRECTIONS NOTED” or “AMEND AND RESUBMIT” and the required corrections will be explained. One print and one reproducible copy will be returned for correction.

6.8 Re-submittals. Re-submittals will be handled in the same manner as first submittals, and the same review time shall apply.

- Specific attention shall be directed to revisions other than those requested by BATA on previous submittals by an accompanying letter or on the resubmitted drawings.
- If any corrections shown on the drawings constitute a change of contract requirements, BATA shall be notified, as previously specified.

6.9 Acceptance. If accepted by BATA, each copy of the drawing will be stamped and dated indicating acceptance. One print and one reproducible copy will be returned.

6.10 Changes. When working and shop drawings have been completed to the satisfaction of BATA, the construction shall be carried out in accordance with such drawings, and no changes shall be made thereon except upon written direction from the Engineer.

During execution of the work, the Contractor shall use only drawings that are either stamped “MAKE CORRECTION NOTED” or “NO EXCEPTIONS TAKEN” and bear BATA’s signature.

6.11 Damages. The Contractor shall take responsibility for, and bear all cost of, damages that may result from ordering material or from proceeding with work before approval by BATA.

6.12 Samples. The Contractor shall furnish samples as specified and requested by BATA as soon as possible after request. Unless otherwise indicated, not less than two identical samples of each type required shall be submitted.

Shipping charges on samples shall be prepaid by the Contractor. Products for which samples are requested shall not be used until approved in writing by BATA. Each sample shall be labeled to indicate:

- Name of project and Contract number
- Name of the Contractor and Subcontractor or Supplier, if applicable
- Material or equipment represented
- Source
- Name of producer and brand (if any)
- References to the parts of Section 10, which are applicable to the sample

- Location of work

Certain samples may be tested by BATA. Approved samples not destroyed in testing may be retained by BATA. Samples not approved will be returned at the Contractor's expense, if so requested at the time of submittal.

6.13 Shipment Letter. A letter shall be mailed under separate cover submitting each shipment of samples and detailing the information required in the preceding paragraph. A copy of the letter shall be enclosed with the shipment.

6.14 Test Results. Documents such as certificates, reports, and test results specified in Section 10. Construction details shall be submitted to BATA.

- Three copies of each required shall be submitted, unless specified otherwise.
- Notice of completion of work to hold points specified in the encroachment permit must be given to BATA fourteen (14) calendar days before estimated completion of that work.

6.15 Payment. The Contractor shall receive no separate payment from BATA for complying with the above requirements and is presumed to have allocated such costs to bid price.

SC-7 Permits and Fees

The Contractor shall be responsible for securing a copy of BATA acquired permits from BATA and shall comply with said permits requirements. The Contractor shall pay all charges required to comply with the conditions outlined in the permits.

The following permits will be obtained by BATA prior to the notice to proceed unless otherwise specified:

- Caltrans Maintenance Permit issued to BATA

The Contractor shall apply for all jurisdictional permits required to perform the work and will include the cost of the required permits in the bid price.

Caltrans Permit – The Contractor shall obtain a copy of the Caltrans encroachment permit issued to the Bay Area Toll Authority and shall comply with all provisions of said permit.

Contractor shall apply for Caltrans' construction encroachment permit within two (2) calendar days after the Notice of Award. The Contractor obtained Caltrans' construction encroachment permit will require, but is not limited to, the following provisions:

- (1) Proof of payment and performance surety bonds.
- (2) Permit fee will be waived by Caltrans.
- (3) **Other conditions as stipulated in said permit to be issued by Caltrans to BATA.**

Full compensation for complying with these permit requirements shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore.

SC-8 Materials & Services

8.1 Source of Supply and Quality of Materials The Contractor shall furnish all materials required to complete the work, except materials that are designated in the specifications to be furnished by BATA (“Owner”) and materials furnished by BATA.

Only materials conforming to the requirements of the specifications shall be incorporated in the work.

The materials furnished and used shall be new, except as may be provided elsewhere in these specifications or on the contract plans. The materials shall be manufactured, handled and used in a workmanlike manner to ensure completed work in accordance with the plans and specifications.

Materials to be used in the work will be subject to inspection and tests by the Engineer or the Engineer's designated representative. The Contractor shall furnish without charge such samples as may be required.

The Contractor shall furnish the Engineer a list of the Contractor's sources of materials and the locations at which those materials will be available for inspection. The list shall be submitted on a BATA-furnished form and shall be furnished to the Engineer in sufficient time to permit inspecting and testing of materials to be furnished from the listed sources in advance of their use. BATA-furnished materials shall be identified within the baseline schedule as a separate activity as detailed in SC-23, Progress Schedule. The Engineer may inspect, sample or test materials at the source of supply or other locations, but the inspection, sampling or testing will not be undertaken until the Engineer is assured by the Contractor of the cooperation and assistance of both the Contractor and the supplier of the material. The Contractor shall assure that the Engineer or the Engineer's authorized representative has free access at all times to the material to be inspected, sampled or tested.

It is understood that the inspections and tests if made at any point other than the point of incorporation in the work in no way shall be considered as a guaranty of acceptance of the material nor of continued acceptance of material presumed to be similar to that upon which inspections and tests have been made, and that inspection and testing performed by BATA shall not relieve the Contractor or the Contractor's suppliers of responsibility for quality control.

Manufacturers' warranties, guaranties, instruction sheets and parts lists, which are furnished with certain articles or materials incorporated in the work, shall be delivered to the Engineer before acceptance of the contract.

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Reports and records of inspections made and tests performed, when available at the site of the work, may be examined by the Contractor.

8.2. Owner Furnished Materials: The following materials will be furnished to the Contractor by BATA:

- A. Unassembled CMS support structures (portions) including hardware to mount Changeable Message Sign (CMS) panels for the Richmond San Rafael Bridge.
- B. CMS panels, including the controller units, power supplies, communication cables and interface equipment, spare parts, and control software, will be furnished to the Contractor. The Contractor shall furnish the Field cabinets for the CMS System.
- C. CMS Controller Cabinets

Owner-furnished materials will be made available at locations in the San Francisco Bay Area to be specified by the Engineer. The Contractor shall arrange for the pick up, hauling and delivery of Owner-furnished materials in accordance with Section 6-1.02, "State-Furnished Materials," of the State Standard Specifications and these special conditions. Owner furnished materials shall be available for pick-up from the BATA storage facility no earlier than the following dates:

Owner Furnished Material	Date available for pick-up
CMS, CMS controllers, cables and associated equipment	April 7, 2010
Unassembled CMS Support Frame Members Richmond San Rafael Bridge (portions)	April 7, 2010
CMS Controller Cabinets	June 1, 2010

The Contractor shall notify the Engineer not less than five (5) working days before Owner-furnished materials are to be picked up by the Contractor. A full description of the material and the date and time the material will be picked up shall be provided to the Engineer.

Full compensation for pick-up, hauling, delivery, and on-site storage and handling of Owner-furnished materials will be considered as included in the prices paid for installing the Owner-furnished materials and no additional compensation will be allowed therefore.

SC-9 Delivery, Unloading and Storage

The Contractor shall be completely responsible for all delivery, unloading and storage activities required for the completion of work under this contract, including "Owner Furnished Materials" of these special conditions.

SC-10 Work Sequence & Constraints

10.1 Work Sequence When required by these Special Conditions, the Contractor shall follow the sequence of operations as set forth therein.

Attention is directed to “Order of Work” of the Construction Details regarding work sequencing and the “Stage Construction/Traffic Handling Plans” for details of the proposed construction sequencing.

Full compensation for conforming to those requirements will be considered as included in the prices paid for the various items of work and no additional compensation will be allowed thereof.

10.2 Coordination Refer to Article GC-39 Cooperation/ Coordination and Work by Others.

It is anticipated that work by other contractors may be in progress adjacent to and within the limits of this project during progress of the work on this contract at the all toll bridge Toll Plazas. Progress schedules for other work/contracts, if available, may be inspected by the Contractor upon approval by the Engineer. Such progress schedules are tentative and cannot be guaranteed accurate.

The CMS Manufacturer selected under another contract will provide the services and materials detailed in these special provisions. The Contractor and the Contractor’s CMS Installation Contractor shall provide complete support and work closely with the CMS Manufacturer in the installation and testing of CMS controllers, power supplies, and CMS control software.

The Contractor shall coordinate its Work with all other contractors, utility companies, and subcontractors performing work on or adjacent to the site. The Contractor shall schedule its work so as to avoid conflicts with other contractors and to avoid damage to completed or incomplete Work. The Contractor shall be responsible for any damage to the work of other contractors or subcontractors if the Contractor’s actions resulted in such damage. The Contractor shall take immediate action to remedy such damage so as to not delay the immediate prosecution of the work.

Full compensation for providing cooperation for work by others shall be considered as included in the prices for the various items of work involved and no additional compensation will be allowed thereof.

No State-owned parcels adjacent to the right of way are available for the exclusive use of the Contractor within the contract limits. The Contractor shall secure, at the Contractor's own expense, areas required for plant sites, storage of equipment or materials, or for other purposes.

No area is available within the contract limits for the exclusive use of the Contractor. However, temporary storage of equipment and materials on State property may be arranged with the State, subject to the prior demands of State maintenance forces and to other contract requirements. Use of the Contractor's work areas and other State-owned property shall be at the Contractor's own risk, and the State or BATA shall not be held liable for damage to or loss of materials or equipment located within such areas.

The Contractor shall obtain encroachment permits prior to occupying State-owned parcels outside the contract limits. The required encroachment permits may be obtained from the Department of Transportation, Permit Engineer.

Residence trailers will not be allowed within the highway right-of-way.

The Contractor shall remove equipment, materials, and rubbish from the work areas and other State-owned property that the Contractor occupies. The Contractor shall leave the areas in a presentable condition in conformance with the provisions in **GC-53, Final Clean Up** and **GC-55, Final Inspection and Acceptance of the Work**.

The Contractor shall secure, at the Contractor's own expense, areas required for plant sites, storage of equipment or materials or for other purposes, if sufficient area is not available to the Contractor within the contract limits, or at the sites designated on the plans outside the contract limits.

SC-11 Mobilization

11.1 Mobilization. Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all offices, buildings and other facilities necessary for work on the project; and for all other work and operations which must be performed or costs incurred prior to beginning work on the various contract items on the project site.

11.2 Payment Attention is directed to **Section GC-59, Invoicing and Progress Payments**. Payments for mobilization will be made as follows:

When the monthly progress payment invoice of the amount earned, not including the amount earned for mobilization, is 5 percent or more of the original contract amount, 50 percent of the contract item price for mobilization or 5 percent of the original contract amount, whichever is the lesser, will be included in the invoice for payment.

When the monthly partial payment invoice of the amount earned, not including the amount earned for mobilization, is 10 percent or more of the original contract amount, the total amount earned for mobilization shall be 75 percent of the contract item price for mobilization or 7.5 percent of the original contract amount, whichever is the lesser, and that amount will be included in the invoice for payment. When the monthly partial payment invoice of the amount earned, not including the amount earned for mobilization, is 20 percent or more of the original contract amount, the total amount earned for mobilization shall be 95 percent of the contract item price for mobilization or 9.5 percent of the original contract amount, whichever is the lesser, and that amount will be included in the invoice for payment.

When the monthly partial payment invoice of the amount earned, not including the amount earned for mobilization, is 50 percent or more of the original contract amount, the total

amount earned for mobilization shall be 100 percent of the contract item price for mobilization or 10 percent of the original contract amount, whichever is the lesser, and that amount will be included in the invoice for payment.

After acceptance of the contract pursuant to **GC-55, Final Inspection and Acceptance of All or a Portion of the Work**, the amount, if any, of the contract item price for mobilization in excess of 10 percent of the original contract amount will be included for payment in the first estimate made in conformance with the provisions in **GC-59, Invoicing and Progress Payments**.

The contract lump sum price paid for mobilization shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in mobilization as specified herein.

The adjustment provisions in **GC-65, Change Requests and Change Notices**, and in **GC-66, Change Order**, and the retention of funds provisions in GC-59 shall not apply to the contract lump sum item of mobilization.

SC-12 Sound Control Requirements

Sound control shall conform to the provisions in Section 7-1.01I, "Sound Control Requirements," of the Standard Specifications and these special provisions.

The noise level requirement shall apply to the equipment on the job or related to the job, including but not limited to trucks, transit mixers or transient equipment that may or may not be owned by the Contractor. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

Payment for conforming to the requirements of this section shall be considered as full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for performing all work involved in completing the requirements of this section, and shall be considered as included in the prices paid for the various contract items of work. No additional compensation will be allowed therefor.

SC-13 Worker's Safety Provisions

The Contractor shall promptly and fully comply with, carry out and shall without separate charge therefore to the owner enforce compliance with the safety and first aid requirements stated herein, prescribed by applicable laws and regulations and those prescribed by an official or representative charged with the enforcement thereof. The Contractor shall take such other measures as may be necessary so that work shall be done in a safe manner and that the safety and health of employees and the people of local communities are safeguarded. Compliance with these Special Conditions by subcontractors is the responsibility of the Contractor.

13.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. To that end the Contractor shall:

(1) No later than ten (10) days after receipt of the Notice of Award, submit for review Contractor's Injury Prevention Program (IPP), which shall be site and task specific, and shall meet or exceed the requirements of BATA's Injury Prevention Program, and shall comply with California Labor Code Section 6401.7. Contractor will be responsible for overseeing compliance of their Subcontractors IPP, upon request, the Subcontractors IPP may be reviewed by BATA; and (2) No later than ten days after receipt of Notice of Award, submit the resume of the full time, qualified Safety Representative(s) who reports directly to the Contractor's Project Manager or Superintendent, and allocates 100% of their time to safety oversight for field operations on the above mentioned project. The Contractor's Safety Representative(s) shall have a minimum of five (5) years heavy construction experience in administering safety programs on construction job sites, the last two of which have been administering safety in the construction discipline for which contractor is contracting with Owner. The Contractor Safety Representatives(s) shall be onsite during all operational hours. The full time Safety Representative(s) shall set up, carry forward and aggressively and effectively maintain the aforementioned Safety Program covering all phases of the Work. If at any time the Contractor wishes to replace their Safety Representative(s), the Contractor must provide written notice thirty (30) days prior to change of personnel to BATA. The Contractor shall take all precautions and follow all procedures for the safety of, and shall provide all protection to prevent injury to, all persons involved in any way in the Work and all other persons, including, without limitation, the employees, agents, guests, visitors, invitees and licensees of BATA who may be involved. These precautions shall include, but in no event be limited to the provisions of BATA's IPP. This requirement applies continuously and is not limited to normal working hours.

13.2 Attention is directed to Section 6705 of the Labor Code concerning trench excavation safety plans, "Trench Safety." Excavation for any trench 1.5m or more in depth shall not begin until the Contractor has received approval from the Engineer of the Contractor's detailed plan for worker protection from the hazards of caving ground during the excavation of that trench and any design calculations used in the preparation of the detailed plan.

The detailed plan shall show the details of the design of shoring, bracing, sloping or other provisions to be made for worker protection during the excavation. No plan shall allow the use of shoring, sloping or a protective system less effective than that required by the Construction Safety Orders of the Division of Occupational Safety and Health. If the plan complies with the shoring system standards established by the Construction Safety Orders, the plan shall be submitted at least 5 days before the Contractor intends to begin excavation for the trench.

If the plan varies from the shoring system standards established by the Construction Safety Orders, the plan shall be prepared and signed by an engineer who is registered as a Civil Engineer in the State of California, and the plan and design calculations shall be submitted at least three (3) weeks before the Contractor intends to begin excavation for the trench. Full compensation for furnishing all plans and working drawings shall be considered as included in the prices paid for the contract items of work that the drawings relate and no additional compensation will be allowed therefor.

13.3 If the Contractor encounters on the Site material reasonably believed to be asbestos, polychlorinated biphenyl (PCB) or other Hazardous Substance (as defined in California Health and Safety Code, Chapter 6.6, and all regulations pursuant thereto and paragraph 1.5 below) which has not been rendered harmless, the Contractor shall immediately stop Work in that area affected and report the condition to BATA in writing. The Work in the affected area shall not thereafter be resumed except by written agreement of BATA and Contractor if in fact the material is asbestos or polychlorinated biphenyl (PCB) or other hazardous substance and has not been rendered harmless. The Work in the affected area shall be resumed in the absence of asbestos or polychlorinated biphenyl (PCB) or other hazardous substance, or when it has been rendered harmless, by written agreement of BATA and the Contractor, or in accordance with a final determination by an Environmental Consultant employed by BATA.

The Contractor shall not be required pursuant to GC- 9 to perform without consent any Work relating to asbestos, polychlorinated biphenyl (PCB) or other hazardous substance.

The Contractor shall not permit any hazardous substances to be brought onto or stored at the Project Site or used in the construction of the Work, except for specified materials and commonly used construction materials for which there are no reasonable substitute. All such materials shall be handled in accordance with all manufacturers' guidelines, warnings and recommendations and in full compliance with all applicable laws. All notices required to be given with respect to such materials shall be given by the Contractor. The Contractor shall not intentionally release or dispose of hazardous substances at the Project Site or into the soil, drains, surface or ground water, or air, nor shall the Contractor allow any Subcontractor, Sub-subcontractor or Supplier or any other person for whose acts the Contractor or any Subcontractor, Sub-subcontractor or Supplier may be liable, to do so. For purposes of Contract Documents, "hazardous substance" means any substance or material which has been determined or during the time of performance of the Work is determined to be capable of posing a risk of injury to health, safety, property or the environment by any federal, state or local governmental authority.

The Contractor and Subcontractors of each tier shall provide BATA with Material Safety Data Sheets for all materials to be incorporated into or used in the prosecution of the Work to be performed, including commonly used construction materials, which contain any hazardous substance or mixture, including without limitation any chemical listed by the State of California as a chemical known to cause cancer or reproductive harm (as defined in California Health and Safety Code, Chapter 6.6, and all regulations pursuant thereto). The Material Safety Data Sheets shall contain all necessary and legally required information concerning such substances as asphalt's, solvents, adhesives, epoxy resins, roofing sealant and bonding agents, mixtures or chemicals, in a format agreed to by BATA or as required by law.

The Contractor shall set forth in writing its safety precautions and programs in connection with the Work, which meets or exceeds any and all applicable laws, ordinances, rules, regulations, and orders of any public, quasi-public, or other authority relating to the safety of

persons and their protection against injury, specifically including, but in no event limited to the:

Federal Occupational Safety and Health Act of 1970, as amended, California Occupational Safety and Health Act of 1973, the Labor Code, and all rules and regulations now or hereafter in effect pursuant to the Act and the requirements of BATA as outlined in Highway Construction IPP.

In the event of conflicting requirements, the more stringent requirement shall govern.

All Work, whether performed by the Contractor, or its Subcontractors of all tiers or anyone directly or indirectly employed by any of them, and all equipment, machinery, materials, tools and like items incorporated or used in the Work, shall be in compliance with and conform to:

All applicable laws, ordinances, rules, regulations, and orders of any public, quasi-public, or other authority relating to the safety of persons and their protection against injury, specifically including, but in no event limited to, the Federal Occupational Safety and Health Act of 1970, as amended, and all rules and regulations now or hereafter in effect pursuant to said Act; and Contractor shall provide, or cause to be provided, each worker on the Project Site the proper safety equipment for the duties performed by that worker and will not permit any worker on the Project Site who fails or refuses to use the same. BATA shall have the right, but not the obligation, to order Contractor to send a worker off the Project Site for the day or to discharge a worker for his or her failure to comply with safety practices.

13.4 The Contractor shall, throughout the performance of the Work, maintain adequate and continuous protection of all Work and temporary facilities against loss or damage from whatever cause. The Contractor shall protect the property of BATA and third parties from loss or damage from whatever cause arising out of the performance of Work and shall comply with the requirements of BATA, its insurance carriers and with all applicable laws, codes, rules and regulations with respect to the prevention of loss or damage to property as a result of fire or other hazards to:

- Employees on the Work and other persons who may be affected thereby;
- The Work and materials and equipment to be incorporated therein, whether in storage on or off the Site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- Other property at the Site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- Solvents, oils and any other substance, which may be harmful to plant life, shall be disposed of in containers and removed from the Site. At completion of the Work, any contaminated soil shall be removed and replaced with soil of equal quality prior to contamination by the Contractor at no increase in Contract Sum.

13.5 BATA may make periodic patrols of the Project Site as a part of its normal security and safety program. The Contractor shall not be relieved of its aforesaid responsibilities and BATA shall not assume same, nor shall it be deemed to have assumed, any responsibility otherwise imposed upon the Contractor, as a result of safety patrols by BATA.

13.5.1 The Contractor shall be responsible for the payment of all fines levied against BATA arising from or related to activities over which Contractor has responsibility under Contract Documents, or for Work that does not conform to the Contract Documents.

The Contractor shall give notice in writing, at least forty-eight (48) hours before breaking ground, to all persons having interests on or near the Site, Public Utility Companies, owners of property having structures or improvements in proximity to the Site of the Work, Superintendents, Inspectors, or those otherwise in charge of property, streets, water pipes, gas pipes, sewer pipes, telephone cables, electric cables, railroads or otherwise who may be affected by the Contractor's operation, in order that they may remove any obstruction for which they are responsible and have a representative on Site to see that their property is properly protected. Such notice does not relieve the Contractor of responsibility for any damages, claims, and defense of all actions against BATA resulting from performance of such Work.

13.5.2 The Contractor shall erect and maintain, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent Sites and utilities.

13.5.3 Use or storage of explosives is prohibited.

13.5.4 The Contractor shall rebuild, repair, restore and make good all losses of, and injuries or damages to, the Work or any portion thereof (specifically including owner-supplied, equipment or other items to be utilized in connection with, or incorporated in the Work) before final acceptance of the Work. Such rebuilding, repair or restoration shall be at the Contractor's sole cost and expense unless the loss, injury or damage requiring such rebuilding, repair or restoration is caused by a hazard against which BATA is insured if the loss, injury or damage would not have occurred but for the negligent act or omission of the Contractor, or its Subcontractors of any tier or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, the rebuilding, repair or restoration shall be at the Contractor's cost and expense to the extent of the deductible in said insurance. If any policy of insurance covering loss or damage to the Work is voided due to any action of the Contractor or any of its Subcontractors of any tier, such rebuilding, repair or restoration shall be at the Contractor's sole cost and expense.

13.6 The Contractor shall designate a competent person for each task, as required by Cal-OSHA laws. The task competent person shall be approved by BATA, to be responsible for the prevention of accidents. If BATA or any public agency with jurisdiction notifies the

Contractor of any claimed dangerous condition at the Site that is within the Contractor's care, custody or control, the Contractor shall take immediate action to rectify the condition at no additional cost to BATA. The Contractor shall be responsible for the payment of all fines levied against BATA for deficiencies relating to the Contractor's supervision or conduct and /or control of the Work.

The Contractor shall not load or permit any part of the construction or Site to be loaded so as to endanger safety of persons or property.

The Contractor shall not permit open fires on the Project Site.

The Contractor shall no later than ten days following award forward the Emergency Action Plans to BATA.

No later than five (5) working days prior to the arrival of a crane, the Contractor must provide the most recent annual and quadrennial certificates. The Contractor must also provide crane operator certificates from the National Commission for the Certifying of Crane Operators (NCCCO), as outlined in IPP, no later than five working days prior to a crane operator working onsite.

Job Hazard Analysis shall be forwarded to BATA no later than five working days prior to operation being performed. All accident investigations by the Contractor shall be forwarded to BATA no later than five working days following an accident.

The Contractor shall return all improvements on or about the Site and adjacent property which are not shown to be altered, removed or otherwise changed to conditions which existed previous to starting performance under the Contract.

13.7 Emergencies In any emergency affecting the safety of persons or property, or in the event of a claimed violation of any Federal or State safety or health law or regulation, arising out of or in any way connected with the Work or its performance, Contractor shall ensure that at least one of Contractor's employees with authority shall be on duty during working hours, and act immediately to prevent threatened damage, injury or loss or to remedy said violation, whichever is applicable, failing which BATA may immediately take whatever action it deems necessary, including, but not limited to, suspending the Work as provided in GC-69. Contractor shall also establish and maintain adequate First Aid facilities at locations close to work areas, and mark such locations with signs of adequate size and composition. Contractor shall also ensure that at least one CPR/ first aid trained employee for every fifteen (15) employees onsite. At no time shall less than two (2) CPR/first aid trained employees be onsite during operational hours. Training records or certificates for initial and renewal CPR/ first aid training shall be forwarded to BATA no later than ten (10) days following notice of award.

SC-14 Hazardous Materials

The Contractor shall submit Material Safety Data Sheets (MSDS) for all hazardous materials being brought onto the project site, including but not limited to: asphalts, solvents, adhesives, epoxy resins, roofing sealants and bonding agents.

14.1 Aerially Deposited Lead Aerially Deposited Lead is defined as lead deposited within the unpaved areas of the project Right of Way, primarily due to vehicle emissions. Materials with total levels of lead greater than the Total Threshold Limit Concentration (TTLC) of 1000 milligrams per kilogram (mg/kg) or solubility levels, as established by the California Waste Extraction Test (WET), greater than the Solubility Threshold Limit Concentration (STLC) of 5 milligrams per liter (mg/l) shall be considered hazardous pursuant to California Code of Regulations, Title 22. The materials with aerially deposited lead are not regulated under the Federal Resource Conservation and Recovery Act (RCRA).

Aerially deposited lead contamination has been discovered through testing of materials within the project limits.

A report describing the results of the testing of materials within the project limits is available for inspection at BATA.

Caltrans has received from the California Department of Toxic Substance Control (DTSC) a Variance regarding the use of material containing aerially deposited lead. This project is subject to the conditions of the Variance, as amended. The Variance is available for inspection at BATA.

Provisions of this section shall be made a part of every subcontract executed pursuant to this contract. The Contractor shall comply with the conditions of the variance.

Excavation, transportation, placement and handling of soils containing aerially deposited lead shall result in no visible dust. The Contractor shall have a water truck available at all times while performing earthwork, excavation or grubbing activities in work areas containing aerially deposited lead at hazardous levels.

Once the Contractor has completed the placement of materials containing aerially deposited lead, in accordance with the plans, as specified in these special conditions, the Contractor shall have no responsibility for such materials in place and shall not be obligated for further cleanup, removal or remedial actions for such materials.

Excavation, reuse, and disposal of material with aerially deposited lead shall be in accordance with all rules and regulations of agencies including, but not limited to, the following:

- United States Department of Transportation (USDOT)
- United States Environmental Protection Agency (USEPA) California Department of Health Services
- California Environmental Protection Agency (Cal-EPA)

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- Department of Toxic Substances Control (DTSC), Region 2 Integrated Waste Management Board
- Regional Water Quality Control Board (RWQCB), Region 2 State Air Resources Control Board
- Bay Area Air Quality Management District (BAAQMD)
- California Division of Occupational Safety and Health Administration (CAL-OSHA)

The Contractor shall prepare a project specific Health and Safety Plan to prevent or minimize exposure to potentially hazardous levels of lead. The Contractor's attention is directed to Title 8, California Code of Regulations, Section 5192 (b) (4) 03) and the Occupational Safety and Health Guidance Manual published by National Institute of Occupational Safety and Health (NIOSH), Occupational Safety and Health Administration (OSHA), and USEPA for elements of the site safety plan. The Health and Safety Plan shall contain as a minimum but not be limited to: identification of key personnel for the project, job hazard analysis for work assignments, summary of risk assessment, air monitoring plan, personal protective equipment, delineation of work zones on-site, decontamination procedures, general safe work practices, security measures, emergency response plans and worker training.

The Health and Safety Plan shall utilize monitoring and exposure standards based on Construction Standards of Title 8, California Code of Regulations Section 1532.1 and as a minimum shall contain a description of activities, specific means employed to achieve compliance, report of the technology considered, schedule for implementation of the program, a work practice program, administrative control schedule, description of arrangements for information transfer between contractors concerning potential exposure to lead and other relevant information. The Health and Safety plan shall be approved by the Contractor's Certified Industrial Hygienist before submission to the Engineer. The plan shall be submitted to the Engineer for review and acceptance at least 15 days prior to beginning any work in areas containing aeriaily deposited lead.

Prior to performing any work in areas containing lead, personnel who have no prior training or are not current in their training status, including BATA, and BATA consultant's personnel, shall complete a safety training program provided by the Contractor, which meets the requirements of Title 8, California Code of Regulations, Section 1532.1.

Personal protective equipment, training, and medical surveillance required by the Contractor's Health and Safety Plan shall be supplied to BATA personnel by the Contractor. The number of BATA personnel will be five (5).

Full compensation for the Health and Safety Plan including furnishing all the labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing the Health and Safety Plan, including paying a Certified Industrial Hygienist, and for providing personal protective equipment, training and medical surveillance, as specified in these special conditions, and as directed by the Engineer shall be considered as included in the prices paid for the various items of work no additional compensation shall be allowed therefor.

14.2 Removal of Asbestos and Hazardous Substances When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos or a hazardous substance as defined in Section 25916 and 25317 of California Code of Regulations, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe. The Contractor shall immediately cease work in the affected area and report the condition to the Engineer in writing.

In conformance with Section 25914.2 of the Health and Safety Code, removal of asbestos or hazardous substances including exploratory work to identify and determine the extent of the asbestos or hazardous substance will be performed by separate contract.

Pursuant to Section 25169.3 (e) of CH&SC, a DTSC certified waste hauler must transport hazardous waste to an appropriate waste disposal facility. Waste profiling and manifesting shall conform to the requirements in accordance with Health and Safety Code.

If delay of work in the area delays the current controlling operation, the delay will be considered a right of way delay and the Contractor will be compensated for the delay in conformance with the provisions in GC-32, Excusable Delays and Extension of Time.

SC-15 Construction Water Conservation

The Contractor shall, whenever possible and not in conflict with other requirements of the Contract, minimize the use of water during construction of the project. Watering equipment shall be kept in good working order; water leaks shall be repaired promptly; and washing of equipment, except when necessary for safety or for the protection of equipment, shall be discouraged. All water used for construction purposes such as dust control, compaction, cleaning streets, etc., may be reclaimed water.

SC-16 Air Pollution Control

The Contractor shall comply with all air pollution control ordinances and statutes which apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances and statutes, specified in Section 11017 of the Government Code.

Unless otherwise provided in the special provisions, material to be disposed of shall not be burned, either inside or outside the highway right of way.

SC-17 Contractor Cooperation and Coordination

Contractor shall conform to the Section SC-10-2, "Coordination," and this section of these special conditions. Contractor shall cooperate with and coordinate its work with any private development work, utility relocation work or any other contractor, which may be performing work in the immediate area of this work.

If required Contractor shall attend weekly coordination meeting to review construction status problems, schedule, concerns, etc. and to resolve any outstanding issues, as directed by the Engineer.

SC-18 Not Used

SC-19 Final Pay Quantities

When the estimated quantity for a specific portion of the work is designated on the plans or in the Schedule of Quantities and Prices as a final pay quantity (F), the estimated quantity shall be the final quantity for which payments for the specific portion of the work will be made, unless the dimensions of the portion of the work shown on the plans are revised by BATA, or unless the portion of the work is eliminated. If the dimensions of the specific portion of the work are revised, and the revisions result in an increase or decrease in the estimated quantity of the portion of the work, the final quantity for payment will be revised in the amount represented by the changes in the dimensions. If the specific portion of the work is eliminated, the final pay quantity designated for the specific portion of the work will be eliminated. In the event that the quantity of a final pay item shown on the Schedule of Quantities and Prices differs from a quantity that can be calculated from dimensions or lines shown on the Plans, the quantity shown on the Schedule of Quantities and Prices shall govern.

When portions of an item have been designated on the plans or in the Schedule of Quantities and Prices as final pay quantities, portions so designated will be measured and paid for in accordance with the provisions of **GC-59, Invoicing and Progress Payments**.

SC-20 Schedule of Values

Following execution of the Contract, the Contractor shall prepare and submit for approval a detailed cost breakdown of Bid Items and scheduled work activities setting forth the estimated value of the various subdivisions of the work in conformity with level 4 summary of P3 Activity Code Breakdown structure, furnished by the Resident Engineer, and detailed in **SC-23, Progress Schedule**. This breakdown shall be for the purpose of enabling the Engineer to check and verify the periodical invoices submitted by Contractor in connection with requests for partial payments.

SC-21 Increase or Decreased Quantities, and Quantity Variation

Reference is made to **GC-57, Increase or Decreased Quantities, and Quantity Variation**. GC-57 is deleted in its entirety and replaced with the following:

If the actual quantity on any item of work paid for on a unit price basis varies from the quantity for such item in the Schedule of Quantities and Prices by 25 percent or less, payment for the item of the work will be made at the contract unit price.

If the actual quantity of such a contract item of the work exceeds the quantity for such item in the Schedule of Quantities and Prices by more than 25 percent, the compensation payable to the Contractor for the amount in excess of the 125 percent of the quantity will be reviewed by the

Contractor and BATA, and an equitable adjustment may be made to the unit price for such excess amount by means of a change order to credit BATA with any reduction in cost or to compensate the Contractor for any increase in the cost resulting from the change in quantity. This review of the adjustment will be made on a force account basis in accordance with **GC-60 Force Account Payment**, at the time mutually acceptable to BATA and the Contractor.

If the actual quantity of such a contract item of the work is less than 75 percent of the quantity for such item in the schedule of quantities and prices, the compensation payable to the Contractor will be reviewed by the Contractor and BATA, and an equitable adjustment may be made to the unit price for the entire quantity by means of a change order credited to BATA with any reduction in cost or compensate the contractor for any increase in cost resulting from the change in quantity. This review of the adjustment will be made on a force account basis in accordance with **GC-60 Force Account Payment**, at the time mutually acceptable to BATA and the Contractor. The payment for the total pay quantity of the work so adjusted in accordance with these provisions included in this paragraph will in no case exceed the payment that would have been made for 75% of the original quantity at the original contract price.

SC-22 Project Close-Out Requirements - Record Drawings

During the project, Contractor shall keep a master set of drawings updated, noting any variation of the Work. Upon completion of the Work, Contractor shall produce a master "Record" set of plans by neatly transferring all such noted variations to blueprint copies of the same drawings, and shall deliver same to the Engineer for signed receipt, certification, and certification.

Payment

Full compensation for work involved in complying with the requirements in **SC-22, Project Close-Out Requirements - Record Drawings**, of these special conditions shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefore.

SC-23 Progress Schedule

23.1 General Requirements: Scheduling of work under this contract shall be performed by the Contractor in accordance with this **SC-23 Progress Schedule**. Development of the schedule and project status reporting requirements shall employ computerized Critical Path Method (CPM) scheduling.

All schedules prepared by the Contractor shall meet the requirements for access, sequencing, construction staging, delivery of Owner furnished materials, contract milestone and completion dates, as specified in the Contract Documents.

The approved baseline schedule, including the most recent accepted update (the Current CPM Schedule), shall be the basis for evaluating job progress and time extension requests. Responsibility for developing the schedule and monitoring actual progress, as compared to the approved baseline schedule, rests with the Contractor.

Inaccuracy of the schedule or failure of the schedule to include any element of the work shall not relieve the Contractor from responsibility for accomplishing the work in accordance with the contract requirements.

23.2 Specific Requirements

23.2.1 Software: All schedules shall be prepared using the latest version of SureTrak or Primavera Project Planner, version 3.1 software. However, other computerized scheduling programs may be allowed by BATA, and will be considered on a case-by-case basis. Use of other scheduling software must be requested and approved in writing, prior to submission of any schedules.

23.2.2 General Submittal Requirements: The Contractor shall submit three (3) copies of each submittal item and an electronic copy on compact disk for all schedule submittals, including but not limited to baseline CPM schedule, CPM schedule update, schedule revisions, recovery schedule, Time Impact Evaluation, and mitigation plan. Unless otherwise specified in this **SC-23**, procedures for the submission, review and acceptance of all schedule submittals shall be per **SC-6, Contract Data Requirements**.

23.3 Schedule Float

23.3.1 Total Float is the amount of time between an activity's early and late start dates, or between its early and late finish dates in the CPM schedule. A baseline CPM schedule with negative float will not be accepted.

23.3.2 Float Ownership: Neither BATA nor the Contractor owns the float; the Project owns the float. As such, float is considered an expiring resource available to both parties on a non-discriminatory basis.

23.3.3 Early Completion Schedule: Should the Contractor submit a baseline schedule that shows completion dates earlier than the contract dates specified in **Special Conditions SC-4 and SC-10**, BATA, upon acceptance of the schedule, and at its discretion, may adjust by change order the contract dates consistent with the early completion milestone dates in the Contractor's baseline schedule. No additional compensation shall be provided to the Contractor for such adjustments to the contract milestones. In the event that BATA elects to not adjust the milestones, the amount of time between the contract milestone date and the early finish date of such milestone shall be considered project float and is subject to the provisions contained in this Special Condition. Impact to the early completion date caused by BATA will not be considered as a basis for a time extension or entitlement to extended overhead compensation unless all available float has expired.

23.4 Baseline CPM Schedule

23.4.1 Submittal: The Contractor shall prepare and submit for acceptance by BATA, a detailed CPM Schedule within 6 calendar days after Notice of Award. The schedule shall present an

orderly and realistic plan for completion of the work, in conformance with all contract requirements. The data date of the baseline CPM schedule shall be the date of Notice of Award.

BATA's review and comments on the schedule shall be limited to contract compliance. If the schedule is rejected (marked "amend and resubmit"), the Contractor shall resubmit the Schedule within five (5) calendar days after receipt of rejection notice. The Contractor shall make corrections to the schedule necessary to comply with contract requirements and shall revise the schedule to address and incorporate all review comments from the review of the baseline CPM schedule. The Contractor shall provide a line-by-line response to all comments from the review of the baseline CPM schedule.

23.4.2 Detailed Requirements: The baseline CPM schedule shall have sufficient number of activities to assure adequate planning of the project and to permit monitoring and evaluation of progress and the analysis of time impacts. It shall depict how the Contractor plans to complete the work involved and shall show all activities that defines the critical path. The baseline CPM schedule shall be time scaled and shall comply with the following requirements:

- All activities in the schedule, with the exception of the first and last activities, shall have a minimum of one predecessor and a minimum of one successor.
- No activity in the schedule shall have duration greater than fifteen (15) working days, with the exception of submittal, approval, fabrication and procurement activities, unless otherwise approved by BATA. Activity durations shall be the total number of actual working days required to perform an activity.
- Durations for all schedule activities that are sensitive to weather and susceptible to weather delays will be developed so as to allow for the anticipated lost working days per month as shown in **SC-23.13, Adverse Weather Delays**.
- Procurement of each major item or type of material or equipment, from submittal, approval, placement of the order through receipt and inspection at the job site, shall be identified as a separate activity.
- Receipt of Owner Furnished Materials and equipment, if any, shall be identified as separate activities.
- Dependencies (or relationships) between activities shall be shown.
- Activities for BATA review and acceptance of submittals and shop drawings for all contract-required material and equipment shall be shown. Activities that are dependent on submittal acceptance or material delivery shall not be scheduled to start earlier than expected acceptance or delivery dates. The Contractor shall be responsible for all impacts resulting from resubmittal of shop drawings and other items.
- Time shall be included for testing, BATA testing, training of BATA personnel, delivery of spare parts, submittal of operating and maintenance manuals, developing punch lists, completing punch list items, and clean-up of the work included in any completion milestone or contract completion.
- The interface with the work of other contractors and agencies such as, but not limited to, utility companies, shall be indicated.

- Detailed subcontractor's work activities shall be shown. As determined by BATA, Contractor shall submit, on subcontractor letterhead, a statement certifying that the subcontractor concurs with the Contractor's incorporation into the baseline CPM schedule of the subcontractor's related schedules, including activity duration's, and resource loading.
- The schedule shall be accompanied by a list of anticipated non-work days and holidays, but shall exclude weekends from this list. This list shall be consistent with the non-workdays and holidays identified in the Contractor's baseline CPM schedule.

23.4.3 Baseline CPM Schedule Narrative A baseline CPM schedule narrative shall be submitted. This narrative shall describe the basis, assumptions, planned sequence of work operations, production rates, equipment, resources, constraints, etc., used to develop the baseline CPM schedule.

23.4.4 Acceptance of the Baseline CPM Schedule: When the schedule is accepted, it shall be considered as the "Approved Baseline CPM Schedule" which will then be updated to reflect the current status of the work. The Approved Baseline CPM Schedule will be the basis of measuring the progress of the project. Such acceptance will be based solely upon the schedule's compliance with the contract requirements.

Acceptance of the schedule by BATA shall not relieve the Contractor of the responsibility for scheduling, sequencing, coordination and prosecuting the work to comply with the requirements of the contract.

BATA reserves the right to require that the Contractor modify, adjust, add to, or clarify any portion of the schedule which may later be discovered to be insufficient or inaccurate for planning, monitoring, or prosecuting the work. No additional compensation shall be provided for such modifications, adjustments, additions, or clarifications.

Submittal of the baseline CPM schedule and subsequent schedule updates, shall be understood to be the Contractor's representation that the submitted schedule meets all of the requirements of the contract and that work shall be executed in the sequence, durations, and methods indicated on the submitted schedule.

23.5 CPM Schedule Update Following acceptance of the Contractor's baseline CPM schedule, the Contractor shall monitor progress of work and formally update the schedule monthly, effective the last Friday of each month, to reflect actual progress, any anticipated changes to planned activities, and corrections to out-of-sequence logic.

Each update shall show all work activities including those already completed. These completed activities shall accurately reflect "as-built" information by indicating when activities were actually started and completed, logic revisions, or activity resequencing.

The accepted updated schedule shall be considered the Current CPM Schedule.

Neither updating, changing or revising any report, schedule or narrative submitted to BATA by the Contractor under this Contract, nor BATA's review or acceptance of any such report, schedule or narrative shall have the effect of amending or modifying, in any way, the contract completion date or milestone dates or of modifying or limiting, in any way, the Contractor's obligations under this contract.

The CPM schedule update, statused through the last Friday of each month, shall be submitted within seven (7) calendar days following that status date. If BATA so requires prior to a given month's update, it may meet with the Contractor and its scheduler to review and agree upon the progress of schedule activities and proposed logic revisions for the given month. This meeting will be conducted 7 calendar days in advance of the last Friday of the month. This meeting, if required, will be referred to as the Monthly Schedule Review Meeting.

BATA will, within fourteen (7) calendar days after receipt of the updated CPM Schedule, either accept, accept with comments, or reject ("amend and resubmit") the submittal.

- If accepted, no additional action by the Contractor is required for that period's submittal.
- If accepted with comments, those comments must be incorporated into the next period's schedule update. Failure to incorporate the comments into the subsequent schedule update will be cause for rejection of the subsequent update.
- If rejected, the Contractor will have seven (7) calendar days to incorporate BATA's comments and resubmit the schedule update for BATA's review. The Contractor shall provide a line-by-line response to all comments from BATA's review of the CPM schedule update. Only one (1) schedule resubmittal per month will be accepted by BATA. Failure to achieve an accepted schedule update for any given month will result in the forfeiture of payment for that associated progress payment period's installment of the schedule pay item (see **SC-23.15 Payment Provisions**).

23.6 Schedule Reports: The following reports for all schedules shall be submitted by the Contractor to BATA:

- Schedule logic report listing activities, their early, late and actual start and finish dates, duration, float, responsibility code and the predecessor and successor relationship of activities sorted by early start.
- Schedule plots presenting time scaled network diagram showing activities and their relationships.

23.7 Contract Status Report: The Contractor shall provide a written narrative of the contract status report in conjunction with each CPM schedule update which shall include:

- Status of major project components (percent complete, amount of time ahead or behind schedule) and an explanation of how the Project will be brought back on schedule, if delays have occurred.
- Progress made on critical activities indicated on CPM schedule.

- Explanations for any lack of work on critical path activities planned to be performed during the previous month.
- Explanations for any schedule changes, including changes to logic or to activity durations.
- List of critical activities scheduled to be performed in the next three (3) week period.
- Status of major material and equipment procurement.
- Any delays encountered during the reporting period.
- List of any working days lost due to weather beyond the adverse weather allowances shown in **SC-23.13, Adverse Weather Delays**.
- Any other information pertinent to status of the Contract. The Contractor shall include additional status information requested by BATA at no additional cost.

23.8 Weekly Schedule Report: At the weekly progress meeting, the Contractor shall provide and present a time scaled three-week look-ahead schedule that contains the actual progress for the previous week and planned activities for the upcoming three weeks. The activities in the three-week look-ahead schedule shall be based upon and correlated by activity number of the Current CPM Schedule. The format of the weekly schedule report shall be subject to review and acceptance by BATA. The weekly schedule report shall be prepared using Primavera Project Planner, version 3.1, SureTrak, or Microsoft Excel software. Handwritten schedules will not be accepted by BATA. BATA may request electronic transmittal of the weekly schedule report, either by electronic mail, or compact disks, at least one day ahead of the weekly progress meeting. The weekly schedule reports submitted during a given month shall form part of the basis for the CPM schedule update provided for in **SC-23.5, CPM Schedule Update**.

23.9 Schedule Revisions: Periodic updating of the schedule to reflect actual progress shall not be considered a revision to the schedule. Since scheduling is a dynamic process, such modifications of activity durations and sequences are usual and customary occurrences. Occasions may arise, however, whether directed by BATA, requested by the Contractor, or in reaction to project events, where true revisions to the schedule are required beyond those actions associated with the mere updating of progress.

To reflect revisions to the schedule, the Contractor shall provide BATA with a written narrative with a description and a reason for each revision. For revisions affecting the sequence of work and activity durations, the Contractor shall provide a schedule logic diagram which compares the original sequence and durations to the revised sequence of work and activity durations.

Schedule revisions shall not be incorporated into any schedule update until the revisions have been accepted by BATA.

BATA will review and advise the Contractor of BATA's decision concerning schedule revision acceptance. If the Contractor disagrees with BATA's decision, the Contractor shall, within seven (7) calendar days from receipt of BATA's decision, provide a written narrative explaining or clarifying the revision. If BATA still does not agree with the Contractor's revision, BATA's decision shall govern, and the schedule shall be updated in accordance with BATA's decision. The Contractor's failure to respond in writing within seven (7) calendar days shall be

contractually interpreted as acceptance of BATA's decision and the Contractor waives its rights to subsequently dispute or file a claim regarding BATA's decision.

Upon request by BATA, Contractor shall provide the subcontractor certifications for revisions affecting any subcontractors.

23.10 Recovery Schedule If the CPM schedule update shows a completion date over twenty (20) working days beyond any contract milestone date, or if specifically directed by BATA, the Contractor shall, within seven (7) calendar days after the submittal of the CPM schedule update, submit to BATA the Contractor's proposed schedule revisions to recover the lost time. As part of this submittal, the Contractor shall provide a written narrative for each revision made to recover the lost time. The narrative shall explain the Contractor's proposed methodology, basis and assumptions made in the recovery of lost time. If the revisions include sequence changes, the Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of work. The recovery schedule shall be prepared as a modification to the Current CPM Schedule that incorporates proposed revisions to recover lost time.

The proposed revisions in a Recovery Schedule shall not be incorporated into any schedule update until they have been accepted by BATA.

If the Contractor's revisions are not accepted by BATA, the Contractor shall follow the procedures in **Section 23.9 of the Special Conditions**.

Upon request by BATA, Contractor shall provide the subcontractor certifications for revisions affecting any Subcontractors.

23.11 Time Impact Evaluation for Change Orders and Other Delays: When the Contractor becomes aware of circumstances considered to be a change to the contract (including change notices and force account directives), the Contractor shall prepare and submit a Time Impact Evaluation (TIE) which includes both a written narrative and a schedule diagram depicting how the changed work affects other schedule activities. The schedule diagram shall show how the Contractor proposes to incorporate the changed work in the current schedule and how it impacts the critical path of the Current CPM Schedule. The Contractor is also responsible for requesting time extensions based on the TIE's impact on the critical path. The diagram must be tied to the main sequence of schedule activities to enable BATA to evaluate the impact of the changed work to the scheduled critical path. The Contractor shall submit the TIE within fourteen (7) calendar days of recognition of such change.

The Contractor shall be responsible for all costs associated with the preparation of TIE's, and the process of incorporating them into the current schedule update. The Contractor shall provide BATA with three (3) copies of each TIE.

Once accepted by BATA, the TIE shall be incorporated into the next CPM schedule update. If the Contractor and BATA are unable to reach agreement, the Contractor shall incorporate changes in accordance with BATA's direction.

If the Contractor does not submit a TIE, for a specific issue, by the stated deadline and in accordance with the requirements of this section, it is mutually agreed that the Contractor does not require a time extension for said issue and that Contractor waives any rights to claim a time extension based on said issue in the future.

23.12 Time Extensions: The Contractor is solely responsible for requesting a time extension for any change, delay, or disruption that, in the opinion of the Contractor, impacts the critical path of the Current CPM Schedule. Time extension will be granted only to the extent that the change, delay, or disruption that impacts the critical path is beyond the control and without fault or negligence of the Contractor or any subcontractor.

The Contractor may be entitled to a compensable time extension for Owner-caused delays that are not concurrent with Contractor-caused or other excusable but non-compensable delays (i.e., weather). The Contractor may be entitled to a non-compensable time extension for Owner-caused delays that are concurrent with Contractor-caused or other excusable but non-compensable delays.

In the event that an Owner-caused delay impacts a contract milestone or the contract completion date, the Contractor shall provide a mitigation plan, including a schedule diagram, which explains how the impact can be mitigated. The Contractor shall also include a detailed cost breakdown of the labor, equipment and material the Contractor would expend to mitigate Owner-caused delay. The Contractor shall submit its mitigation plan to BATA within 7 calendar days from the date of discovery of said impact. The Contractor is responsible for the cost to prepare the mitigation plan.

Failure to request time extension, provide TIE, or provide the required mitigation plan within the time specified in this **Section SC-23**, will result in the Contractor waiving its right to both the time extension and the recovery of costs associated with mitigating the delay.

BATA will not consider any time extension request unless the requirements of this **Section SC-23** are met. BATA will not be responsible or liable to the Contractor for any constructive acceleration due to the failure of the Contractor to comply with the submission requirements and justification requirements of this contract for time extension requests.

Failure of the Contractor to perform in accordance with the Current CPM Schedule shall not be excused by submittal of time extension requests.

23.14 Daily Contractor Construction Report: Contractor shall submit to BATA a daily construction activity report for each working day, including weekends and holidays when work occurred. Each daily construction report shall be submitted no later than the day following the workday represented by the report. The following information shall be included in the report:

1. Project name and Contract/Project number
2. Contractor's name and address
3. Weather, temperature, and any unusual site conditions

4. Brief description of day's activities (work activities shall be referenced by activity number and activity description in the CPM schedule)
5. Labor quantities for Contractor and subcontractors
6. Equipment and other tools utilized by Contractor and subcontractors
7. Unusual occurrences, problems and accidents, if any

23.15 Payment Provisions In the event that the contract contains a separate pay item for a "Progress Schedule", that pay item will be administered as follows: 25% of the pay item upon acceptance by BATA of an approved baseline schedule as described in **Section 23.4** herein. The remainder of the pay item will be invoiced in equal installments by the Contractor computed by dividing the remainder of the pay item amount by the number of progress payment periods from BATA's acceptance date of the baseline CPM schedule or sixty (60) days from the first charged day, whichever is earlier, through contract completion. The final installment will be invoiced when final acceptance of the work occurs. There will be no separate payment provided for all other schedule submittals required in **Special Conditions, SC-23**, other than for the baseline CPM schedule and the CPM schedule update.

If the Contractor fails to submit the baseline CPM schedule within sixty (60) calendar days from Notice of Award, 25% of the pay item for "Progress Schedule" shall be forfeited. The pay item for any progress payment period for which the Contractor does not have an accepted schedule shall not be paid by BATA. No payment for a missed period shall be made retroactively by BATA. Forfeiture of any payments shall not relieve the Contractor from the responsibility to submit the CPM schedule update and all other requirements of this section including weekly schedule reports, daily contractor construction reports, time impact evaluations and recovery schedules throughout the term of the contract.

In addition to the amount retained by BATA from each progress payment, as provided for in **General Conditions, GC-59**, BATA may withhold additional amounts not to exceed 10% of the total progress payment for Contractor's failure to meet the requirements of **Special Conditions, SC-23**. BATA will pay the Contractor the amount withheld once BATA has determined that the Contractor has satisfactorily complied with the requirements of **Special Conditions, SC-23**.

SC-24 Water Pollution Control Plan (WPCP)

Requirements for Water Pollution Control Plan (WPCP) and its implementation shall conform to the terms and conditions specified within **Section 10 Construction Details**.

SC-25 Surface Mining and Reclamation Act

Attention is directed to the Surface Mining and Reclamation Act of 1975, commencing in Public Resources Code, Mining and Geology, Section 2710, which establishes regulations pertinent to surface mining operations.

Material from mining operations furnished for this project shall only come from permitted sites in compliance with the Surface Mining and Reclamation Act of 1975.

SC-26 Laboratory

When a reference is made in the specifications to the "Laboratory," the reference shall mean Division of Engineering Services - Materials Engineering and Testing Services and Division of Engineering Services - Geotechnical Services of the Department of Transportation, or established laboratories of the various Districts of the Department, or other laboratories authorized by the State to test materials and work involved in the contract. When a reference is made in the specifications to the "Transportation Laboratory," the reference shall mean Caltrans Division of Engineering Services - Materials Engineering and Testing Services and Division of Engineering Services - Geotechnical Services, located at 5900 Folsom Boulevard, Sacramento, CA 95819, Telephone (916) 227-7000.

SC-27 (Not Used)

SC-28 Partnering

BATA will promote the formation of a Partnering relationship with Contractor in order to effectively complete the contract to the benefit of both parties. The purpose of this relationship will be to maintain cooperative communication and mutually resolve conflicts at the lowest possible management level.

Contractor may request the formation of such a Partnering relationship by submitting a request in writing to the Engineer after Notice of Award. If Contractor's request for Partnering is approved by the Engineer, scheduling of a Partnering Workshop, selecting the Partnering Facilitator and workshop site, and other administrative details shall be as agreed to by both parties.

The costs involved in providing a facilitator and a workshop site will be borne equally by BATA and Contractor. Contractor shall pay all compensation for the wages and expenses of the facilitator and of the expenses for obtaining the workshop site. BATA's share of such costs will be reimbursed to Contractor in a change order written by the Engineer. Markups will not be added. All other costs associated with the "Partnering" relationship will be borne separately by the party incurring the costs.

The establishment of a Partnering relationship will not change or modify the terms and conditions of the contract and will not relieve either party of the legal requirements of the contract.

SC-29 Bridge Tolls

Toll-free passage on the San Francisco-Oakland Bay Bridge will be granted only for cars, trucks and special construction equipment which are clearly marked on the exterior with the Contractor's identification and which are being operated by the Contractor exclusively for the project, and which are used for the purpose of transporting materials and workers directly to and from the project site.

The Contractor shall make application to the Engineer in advance for toll-free passage. The Contractor will be held accountable for the proper use of passes issued, and upon completion of the work, shall return unused passes to the Engineer.

Attention is directed to Section 23302, "Evasion of Toll," of the Vehicle Code.

SC-30 Value Engineering Change Proposals (VECP)

Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECPs) voluntarily. This Article applies to those Value Engineering Change Proposals that are originated, initiated and developed by Contractor to change the drawings, specifications or other requirements of the Contract. In order to be accepted under this Article, each VECP shall:

- Be identified by Contractor at the time of submittal to BATA as submitted pursuant to this Article; and
- Require a change to the Contract; and
- Decrease the Contract Price; and
- Result in a net savings to BATA of a minimum of \$50,000, or result in a reduction in the overall schedule of thirty (30) calendar days minimum; and
- Maintain the items' required functions such as service life, reliability, economy of operation, ease of maintenance and necessary standardized features and appearance, and not require an unacceptable extension of Contract time. Provided, that it does not involve a change in deliverable end item quantities only; or
- To the contract type only.

30.1 Content of VECP Any VECP Contractor submits shall be in sufficient detail to clearly define the proposed change including:

- A description of the difference between the existing and the proposed Contract requirements, and the comparative advantages and disadvantages of each;
- Contract requirements recommended to be changed if the proposal is accepted;
- A detailed estimate of the amount of the net savings that will result from acceptance of the proposal;
- A prediction of any effects the proposed change would have on costs of maintenance and operation;
- A description and estimate of costs BATA may incur in implementing the VECP, such as test and evaluation and operating and support costs; and
- A statement of the time by which the proposal must be accepted so as to obtain the maximum price reduction, noting any effect upon the Contract completion time.

30.2 Acceptance of VECP BATA may accept or reject part or all of any VECP by giving Contractor written notice thereof. Until such notice is issued, Contractor shall remain obligated to perform in accordance with the terms of the Contract. VECPs will be processed expeditiously; however, BATA shall not be liable for any delay in acting upon any proposal submitted pursuant to this Article. The decision of BATA as to acceptance of any such

proposal shall be final. The denial of any VECP shall not provide Contractor with any basis for claim for damages or delay, nor for release from contractual responsibilities. BATA's approval of a value engineering proposal shall not entitle Contractor to additional compensation or time if the work incorporating the proposal is defective, more expensive, or takes more time.

30.3 VECP Contract Price Adjustment When a VECP submitted pursuant to this Article is accepted:

- An equitable adjustment in the Contract price and in any other affected provisions of the Contract shall be made and the Contract modified in accordance with this Article, or other applicable articles of the Contract.
- The net savings resulting from the change shall be shared between Contractor and BATA on the basis of 40 percent for Contractor and 60 percent for BATA. Net savings shall be determined by deducting from the estimated gross savings, Contractor's costs of developing and implementing the proposal, including any amount attributable to a subcontractor, and the estimated amount of increased costs to BATA resulting from the change, such as review implementation, inspection, related items and BATA-furnished property. Estimated gross savings shall include Contractor's labor, material, equipment, overhead profit and bond. *Gross saving shall be computed by comparing the cost of performing the work under the existing contract with the cost of performing the work as proposed. All costs shall be determined in accordance with **Section GC-60** of these Contract Documents.* The Contract price shall be reduced by the sum of BATA's costs and BATA's share of the net savings.
- Contractor is entitled to share in instant contract savings only, to the full extent provided for in this Article. For purposes of sharing under this Article, the term instant contract shall not include any supplemental agreements to or other modifications of the Contract, executed subsequent to acceptance of the particular VECP, by which BATA increases the quantity of any item or adds any item.

30.4 Inclusion in Subcontracts Contractor shall include value engineering arrangements in any subcontract which, in Contractor's judgment, appears to offer sufficient value engineering potential.

30.5 Identical VECP A VECP identical to one submitted under any other contract, by this or by any other contractor, may also be submitted under the Contract, provided that the proposal originated with such Contractor and not with BATA.

30.6 Restrictions Contractor may restrict BATA's right to use any VECP data by marking it with the following statement:

"This data, furnished pursuant to the Value Engineering article of the Contract, shall not be duplicated, used or disclosed in whole or in part, for any purpose except to evaluate the VECP, unless the proposal is accepted by BATA. The restriction does not limit BATA's right to use

information contained in this data if it is or has been obtained, or is otherwise available, from Contractor or from another source, without limitations. When this proposal is accepted by BATA, BATA shall have the right to duplicate, use and disclose any data in any manner and for any purpose whatsoever, and have others do so whether under this or any Contract.”

Contractor shall have no right to share any future savings derived from incorporation of the VECP in future BATA Contracts.

SC-31 Alternative Methods of Construction

Whenever the plans or specifications provide that more than one specified method of construction or more than one specified type of material or construction equipment may be used to perform portions of the work and leave the selection of the method of construction or the type of material or equipment to be used up to Contractor, it is understood that BATA does not guarantee that every specified method of construction or type of material or equipment can be used successfully throughout all or any part of any project.

It shall be Contractor's responsibility to select and use the alternative or alternatives, which will satisfactorily perform the work under the conditions encountered. In the event some of the alternatives are not feasible or it is necessary to use more than one of the alternatives on any project, full compensation for any additional cost involved shall be considered as included in the contract price paid for the item of work involved and no additional compensation will be allowed therefor.

SC-32 Highway Construction Equipment

Pursuant to the authority contained in Section 591 of the Vehicle Code, BATA has determined that, within such areas as are within the limits of the project and are open to public traffic, the following requirements of the Vehicle Code will apply: the lighting requirements in Section 25803; the brake requirements in Chapter 3, Division 12; the splash apron requirements in Section 27600; and, when operated on completed or existing treated base, surfacing, pavement or structures, except as otherwise provided in **SC-41, Weight Limitations**.

SC-33 Quality Assurance Program

Contractor shall at his/her own expense arrange, submit for BATA's approval and implement a Quality Assurance Program consistent with the requirements of Section 10 Construction details.,.

SC-34 Conformity With Contract Documents and Allowable Deviations

Work and materials shall conform to the lines, grades, typical cross sections, dimensions and material requirements, including tolerances, shown on the plans or indicated in the specifications. Although measurement, sampling and testing may be considered evidence as to conformity, the Engineer shall be the sole judge as to whether the work or materials

deviate from the plans and specifications, and the Engineer's decision as to any allowable deviations there from shall be final.

SC-35 Use Of Materials Found On The Work

Unless designated as selected material as provided in Section 19-2.07, "Selected Material" of the State Standard Specifications, Contractor, with the approval of the Engineer, may use in the proposed construction such stone, gravel, sand or other material suitable in the opinion of the Engineer as may be found in excavation. Contractor will be paid for the excavation of those materials at the contract price for the excavation, but Contractor shall replace at Contractor's expense with other suitable material all of that portion of the material so removed and used which was contemplated for use in the work, except that Contractor need not replace, at Contractor's expense, any material obtained from structure excavation used as structure backfill. No charge for materials so used will be made against Contractor. Contractor shall not excavate or remove any material from within the highway location that is not within the excavation, as indicated by the slope and grade lines, without written authorization from the Engineer.

SC-36 Certificates of Compliance

Reference is made to GC-49, Certificates of Compliance Testing. GC-49 is deleted in its entirety and replaced with Section 6, Control of Materials of the Standard Specifications.

Section 6-3.01 "General" of the Standard Specifications is amended to include the following:

BATA will pay for initial tests. Monies will be deducted from the Contractor for any subsequent tests or re-tests.

SC-37 Environmental Coordination and Cooperation

SC-37.1 Not Used

SC-37.2 Mitigation Measures Department has approved a Categorical Exception/Categorical Exemption for this project. Contractor is advised that compliance with the provisions of this document is a requirement of the Contract. Contractor shall comply with the mitigation measures contained in said document:

NOISE MEASURES

During all site preparation, grading and construction, Contractor shall maintain and operate all equipment consistent with the manufacturer's specifications. Construction equipment will include available noise suppression devices and properly maintained mufflers.

During all site preparation, and construction, Contractor shall site fixed and mobile equipment to minimize noise emissions outside the state right-of-way in the vicinity of sensitive land uses.

During all site preparation, and construction, Contractor shall minimize the staging of construction equipment and unnecessary idling of equipment in the vicinity of sensitive land uses.

SC-37.3 Migratory Nesting Birds

The Contractor's attention is directed to the nesting season of Cliff Swallows, Northern Rough-wing Swallows, White-throated Swifts, other migratory birds (including raptors), and roosting bats. The nesting season generally is from February 15th to September 1st. It is against the law to harm these birds as per the Migratory Bird Treaty Act and California Fish and Game Code. It is the Contractor's responsibility to ensure that these birds are not allowed to nest on structures in the construction area or in vegetation that may be impacted by construction so that the birds and nestlings are not harmed.

Prior to and during construction, the Contractor shall inspect all vegetation, grounds, and structures etc. that may be impacted by construction every two (2) days, and will be required to remove nests that are less than half built and maintain and submit a weekly log documenting the time, date, condition and any actions taken. The Contractor shall install and maintain all nesting exclusion devices throughout the breeding season, or until work in the area makes the devices unnecessary. The Contractor shall remove all exclusion devices when all of the work is complete.

The Contractor shall be responsible for the removal of new and partially built nests before the nests are halfway completed. Nests could be removed with a long pole or could be hosed off with water, or as approved by the Engineer. These methods are to be directed at the partially built nests only and not at the birds. No birds, nests with eggs, or nests with hatchlings will be disturbed.

If BATA or their representative discovers any major problems during the life of the contract, the contractor will be notified and expected to correct the problem within twenty-four (24) hours. The Contractor will be responsible for the maintenance, repair or replacement of the nesting exclusion devices until all of the work is complete.

If nest completions go undetected or nests are completed and eggs are laid, any work around these nests that could harm the birds or their now active nests must be stopped until consultation (as described below) has been performed.

The Contractor shall be responsible for any work stoppages and shall be expected to complete all work as specified in Section **SC-4, "Time For Performance"** and **Section SC-5, "Liquidated Damages,"** of these Special Conditions.

Should an active nest be present or establish in the project area, all work which might impact that nest(s) will be halted until the contractor coordinates with BATA, California Department of Fish and Game (CDFG), and a CDFG approved ornithologist to develop alternatives to avoid take of the nest. No additional time or compensation will be allowed therefor.

SC-37.4 Payment Full compensation for work involved in complying with the requirements herein **SC-37, Environmental Coordination and Cooperation**, shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

SC-38 Not Used

SC-39 Final Inspection and Acceptance

Refer to **GC-55.1, Final Inspection and Acceptance of all the Work**, This paragraph is amended to include the following:

There will be no portions of the work for which the Contractor may be relieved of the duty of maintenance and protection as provided in the above paragraph.

SC-40 Dust Control

This work shall consist of applying water, dust palliative, or both, etc. for the alleviation or prevention of dust nuisance.

Dust resulting from Contractor's work either inside or outside the right-of-way, shall be controlled in conformance with the General Conditions of this contract.

It is also understood that this special condition will not prevent Contractor from applying water or dust palliative for Contractor's convenience if so desired. Water shall be applied as provided in Section 17, "Watering," of the Standard Specifications and dust palliative shall conform to and be applied as provided in Section 18, "Dust Palliative" of the Standard Specifications.

The Contractor shall be required to meet or exceed all air quality standards as applicable by law.

No separate payment will be made for work performed or materials used to control dust. Payment for conforming to the requirements of this section shall be considered as full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for performing all work involved in completing the requirements of this section, and shall be considered as included in the prices paid for the various contract items of work. No additional compensation will be allowed therefor.

SC-41 Weight Limitations

Unless expressly permitted, construction equipment or vehicles of any kind which, laden or unladen, exceed the maximum weight limitations set forth in Division 15 of the Vehicle Code, shall not be operated over completed or existing treated bases, surfacing, pavement or structures in any areas within the limits of the project except as follows in this section.

After application of the curing seal, no traffic or Contractor's equipment will be permitted on cement treated base or lean concrete base for a period of 72 hours. After 72 hours, traffic and equipment operated on the base shall be limited to that used in paving operations and placing additional layers of cement treated base. No traffic or Contractor's equipment will be permitted

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on treated permeable base except for that equipment required to place the permeable base and the subsequent layer of pavement. Trucks used to haul treated base, Portland cement concrete, or asphalt concrete shall enter onto the base to dump at the nearest practical entry point ahead of spreading equipment. Empty haul trucks shall exit from the base at the nearest practical exit point. Entry and exit points shall not be more than 300m ahead of spreading equipment except in locations where specifications prohibit operation of trucks outside the area occupied by the base or where steep slopes or other conditions preclude safe operation of hauling equipment. In those locations, entry and exit points shall be established at the nearest point ahead of spreading equipment permitted by specifications and allowing safe operation of hauling equipment. Damage to curing seal or base shall be repaired promptly by the Contractor, at Contractor's expense, as directed by the Engineer.

Within the limits of the project and subject to the control of the Engineer, and provided that Contractor, at Contractor's expense, shall provide such protective measures as are deemed necessary by the Engineer and shall repair any damage caused by the operations, Contractor will be permitted to:

- (1) Make transverse crossings of those portions of an existing public road or street that are within the highway right of way, with construction equipment which exceeds the size or weight limitations set forth in Division 15 of the Vehicle Code.
- (2) Make transverse crossings of treated bases, surfacing or pavement that are under construction or which have been completed, with construction equipment that exceeds the size or weight limitations set forth in Division 15 of the Vehicle Code.
- (3) Cross bridge structures that are not open to public traffic and which are designed for HS20-44 Live Loading (culverts and pipes excluded), with construction equipment which exceeds the size or weight limitations set forth in Division 15 of the Vehicle Code, but not exceeding the load limitations hereinafter specified, provided that Contractor furnishes to the Engineer the dimensions and maximum axle loadings of equipment proposed for use on bridge structures:
 - (a) The maximum loading on bridge structures due to pneumatic-tired truck and trailer combinations shall not exceed (1) 12 700 kg for single axles, (2) 21 700 kg for tandem axles, nor (3) 27 200 kg total gross load for single vehicles or 50 000 kg total gross load for truck and trailer or semi-trailer combinations.
 - (b) The loading on bridge structures due to 2 and 3 axle pneumatic-tired earthmovers shall not exceed that shown in the following table.

ALLOWABLE CONSTRUCTION LOADING ON BRIDGES FOR 2 AND 3 AXLE EARTHMOVERS	
Spacing of Bridge Girders (center to center in meters)	Maximum Axle Loading (in kilograms)
1.2	12,700
1.5	13,100
1.8	13,600
2.1	14,500
2.4	15,400
2.7	16,700

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3.0 and over	18,000
Minimum Axle Spacing	
<u>For 3-axle earthmovers:</u>	
Axles 1 to 2 = 2.4 m	
Axles 2 to 3 = 6.1 m	
<u>For 2-axle earthmovers:</u>	
Axles 1 to 2 = 6.1 m	

Move equipment within the limits of the project over completed or existing base, surfacing, pavement and structures, whether or not open to the public, in accordance with the limitations and conditions in the "Permit Policy" of the Department of Transportation.

Within the limits of the project and subject to the condition that Contractor shall repair, at Contractor's expense, any damage caused thereby, Contractor will be permitted to cross culverts and pipes with construction equipment which exceeds the size or weight limitations set forth in Division 15 of the Vehicle Code in accordance with the conditions set forth on the plans. If the conditions are not set forth on the plans, the provisions in the first paragraph in this Special Condition will apply.

Should Contractor desire to increase the load carrying capacity of a structure or structures that are to be constructed as a part of the contract, in order to facilitate Contractor's own operations, Contractor may request the Engineer to consider redesigning the structure or structures. Proposals by Contractor to increase the load carrying capacity of structures above 59,000kg per single axle or pair of axles less than 2.4m apart, or above 149,000kg total gross vehicle weight, will not be approved. The request shall include a description of the structure or structures involved and a detailed description of the overloads to be carried, the date the revised plans would be required, and a statement that Contractor agrees to pay all costs involved in the strengthening of the structure or structures, including the cost of revised plans, and further that Contractor agrees that no extension of time will be allowed by reason of any delay to the work which may be due to the alteration of the structure or structures. If the Engineer determines that strengthening the structure or structures will be permitted, the Engineer will inform Contractor of the estimated cost of the alterations, including engineering, and the date that revised plans could be furnished. If the cost and date are satisfactory to Contractor, the Engineer will prepare a change order providing for the agreed upon alterations.

SC-42 Public Convenience and Safety

SC-42.1 Public Convenience. This Section SC-42.1 defines Contractor's responsibility with regard to convenience of the public and public traffic in connection with Contractor's operations.

Attention is directed **GC-38, Public Convenience and Safety** and **Section 10 Construction, Details** for provisions relating to the passage of traffic around the work over detours or lane closures.

Attention is directed to **SC-42.2, Public Convenience and Safety**, for provisions relating to the Contractor's responsibility for the safety of the public. The provisions in **SC-42.2** are in

addition to the provisions in this **SC-42.1** and Contractor will not be relieved of the responsibilities as set forth in **SC-42.2** by reason of conformance with any of the provisions in this **SC-42.1**.

Attention is directed to **SC-43, Flagging** (not used) and **Section 12, "Construction Area Traffic Control Devices" of the Standard Specifications** for provisions concerning flagging and traffic handling equipment and devices used in carrying out the provisions in this **SC-42.1** and **SC-42.2**.

In the event of a suspension of the work, attention is directed to **GC-69, Suspension of Work**.

The Contractor shall so conduct operations as to offer the least possible obstruction and inconvenience to the public and shall have under construction no greater length or amount of work than can be prosecuted properly with due regard to the rights of the public.

Unless otherwise provided in the special provisions, all public traffic shall be permitted to pass through the work with as little inconvenience and delay as possible. Where possible, public traffic shall be routed on new or existing paved surfaces.

Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately by the Contractor at the Contractor's expense.

Existing traffic signals and highway lighting shall be kept in operation for the benefit of the traveling public during progress of the work, and other forces will continue routine maintenance of existing systems.

Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to abutting property owners.

Convenient access to driveways, houses, and buildings along the line of the work shall be maintained and temporary approaches to crossings or intersecting highways shall be provided and kept in good condition. When the abutting property owner's access across the right of way line is to be eliminated, or to be replaced under the contract by other access facilities, the existing access shall not be closed until the replacement access facilities are usable.

The Contractor may be required to cover certain signs that regulate or direct public traffic to roadways that are not open to traffic. The Engineer will determine which signs shall be covered. Except as otherwise provided for construction area signs in Section 12, Construction Area Traffic Control Devices, of the Standard Specifications, furnishing, installing and removing covers will be paid for as extra work as provided in **GC-65, Change Requests and Change Notices**, and **GC-66, Change Orders**.

Roadway excavation and the construction of embankments shall be conducted in such a manner as to provide a reasonably smooth and even surface satisfactory for use by public

traffic at all times; sufficient fill at culverts and bridges to permit traffic to cross shall be placed in advance of other grading operations; and if ordered by the Engineer roadway cuts shall be excavated in lifts and embankments constructed part width at a time, construction being alternated from one side to the other and traffic routed over the side opposite the one under construction. Culvert installation or culvert construction shall be conducted on but one-half the width of the traveled way at a time, and that portion of the traveled way being used by public traffic shall be kept open and unobstructed until the opposite side of the traveled way is ready for use by traffic.

Upon completion of rough grading at the grading plane, or placing any subsequent layer thereon, the surface of the roadbed shall be brought to a smooth, even condition free of humps and depressions, satisfactory for the use of public traffic.

After the surface of the roadbed has been brought to a smooth and even condition for the passage of public traffic as above provided, any work ordered by the Engineer for the accommodation of public traffic prior to commencing subgrade operations will be paid for as extra work as provided in **GC-65, Change Requests and Change Notices**, and **GC-66, Change Orders**. After subgrade preparation for a specified layer of material has been completed, Contractor shall, at Contractor's expense, repair any damage to the roadbed or completed subgrade, including damage caused by Contractor's operations or use by public traffic.

While subgrade and paving operations are underway, public traffic shall be permitted to use the shoulders and, if half-width paving methods are used, shall also be permitted to use the side of the roadbed opposite the one under construction. When sufficient width is available, a passageway wide enough to accommodate at least two (2) lanes of traffic shall be kept open at locations where subgrade and paving operations are in active progress. Any shaping of shoulders or reshaping of subgrade necessary for the accommodation of public traffic thereon during subgrade preparation and paving operations will be paid for as extra work as provided in **GC-65, Change Requests and Change Notices**, and **GC-66, Change Orders**.

When ordered by the Engineer, Contractor shall furnish a pilot car and driver and flaggers for the purpose of expediting the passage of public traffic through the work under one-way controls, and the cost thereof will be paid for as extra work as provided in **GC-65, Change Requests and Change Notices**, and **GC-66, Change Orders**, except that the cost of flaggers furnished for this purpose will be paid for as provided in **SC-43, Flagging (not used)**. At locations where traffic is being routed through construction under one-way controls and when ordered by the Engineer, the movement of Contractor's equipment from one portion of the work to another shall be governed in accordance with the one-way controls.

Water or dust palliative shall be applied if ordered by the Engineer for the alleviation or prevention of dust nuisance as provided in **SC-40, Dust Control**.

In order to expedite the passage of public traffic through or around the work and where ordered by the Engineer, Contractor shall install signs, lights, flares, temporary railing (Type

K), barricades and other facilities for the sole convenience and direction of public traffic. Also where directed by the Engineer, Contractor shall furnish competent flaggers whose sole duties shall consist of directing the movement of public traffic through or around the work. The cost of furnishing and installing the signs, lights, flares, temporary railing (Type K), barricades, and other facilities, not to be paid for as separate contract items, will be paid for as extra work as provided in **GC-65, Change Requests and Change Notices**, and **GC-66, Change Orders**.

The cost of furnishing flaggers for the sole convenience and direction of public traffic will be paid for as provided in **SC-43, Flagging (not used)**.

Contractor will be required to pay the cost of replacing or repairing all facilities installed under extra work for the convenience or direction or warning of public traffic that are lost while in Contractor's custody, or are damaged by reason of Contractor's operations to such an extent as to require replacement or repair, and deductions from any moneys due or to become due Contractor will be made to cover the cost.

Whenever a section of surfacing, pavement or the deck of a structure has been completed, Contractor shall open it to use by public traffic if the Engineer so orders or may open it to use by public traffic if the Engineer so consents. In either case Contractor will not be allowed any compensation due to any delay, hindrance or inconvenience to Contractor's operations caused by public traffic, but will thereupon be relieved of responsibility for damage to completed permanent facilities caused by public traffic, within the limits of that use. Contractor will not be relieved of any other responsibility under the contract nor will Contractor be relieved of cleanup and finishing operations.

Except as otherwise provided in this **SC-42.1** or otherwise in the special conditions, full compensation for conforming to the provisions in this **SC-42.1** shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefor.

SC-42.2 Public Safety It is Contractor's responsibility to provide for the safety of traffic and the public during construction.

Attention is directed to **GC-45, Protection and Restoration of Property** and **SC-1, Indemnification**.

Attention is directed to **SC-42.1, Public Convenience**, for provisions relating to Contractor's responsibility for providing for the convenience of the public in connection with Contractor's operations.

Attention is directed to **Section 12, Construction Area Traffic Control Devices, of the Standard Specifications**, for provisions concerning flagging and traffic-handling equipment and devices used in carrying out the provisions of **SC-42.1** and **SC-42.2**.

Whenever Contractor's operations create a condition hazardous to traffic or to the public,

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Contractor shall, at Contractor's expense and without cost to BATA, furnish, erect and maintain those fences, temporary railing (Type K), barricades, lights, signs and other devices and take such other protective measures that are necessary to prevent accidents or damage or injury to the public.

Contractor shall install temporary railing (Type K) between a lane open to public traffic and an excavation, obstacle, or storage area when the following conditions exist:

- (1) Excavations. The near edge of the excavation is 3.6m or less from the edge of the lane, except:
 - (a) Excavations covered with sheet steel or concrete covers of adequate thickness to prevent accidental entry by traffic or the public.
 - (b) Excavations less than 0.3m deep.
 - (c) Trenches less than 0.3m wide for irrigation pipe or electrical conduit, or excavations less than 0.3m in diameter.
 - (d) Excavations parallel to the lane for the purpose of pavement widening or reconstruction.
 - (e) Excavations in side slopes, where the slope is steeper than 1:4 (vertical:horizontal).
 - (f) Excavations protected by existing barrier or railing.
- (2) Temporarily Unprotected Permanent Obstacles. The work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and Contractor elects to install the obstacle prior to installing the protective system; or Contractor, for Contractor's convenience and with permission of the Engineer, removes a portion of an existing protective railing at an obstacle and does not replace such railing complete in place during the same day.
- (3) Storage Areas. Material or equipment is stored within 3.6m of the lane and the storage is not otherwise prohibited by the provisions of the Standard Specifications and these special provisions.

The approach end of temporary railing (Type K) installed in conformance with the provisions in this section and shall be offset a minimum of 4.6m from the edge of the traffic lane open to public traffic. The temporary railing shall be installed on a skew toward the edge of the traffic lane of not more than 0.3m transversely to 3m longitudinally with respect to the edge of the traffic lane. If the 4.6m minimum offset cannot be achieved, the temporary railing shall be installed on the 10 to 1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules shall be installed at the approach end of the temporary railing.

Temporary railing (Type K) shall conform to the provisions in Section 12-3.08, Temporary Railing (Type K), of the Standard Specifications. Temporary railing (Type K), conforming to the details shown on 1995 Standard Plan T3 or 1992 Standard Plan T3, may be used. Temporary railing (Type K) fabricated prior to January 1, 1993, and conforming to 1988 Standard Plan B11-30 may be used, provided the fabrication date is printed on the required

Certificate of Compliance.

The fourteenth paragraph of Section 12-3.08, Temporary Railing (Type K), of the Standard Specifications is amended to read: Each rail unit placed within 3m of a traffic lane shall have a reflector installed on top of the rail as directed by the Engineer. A Type P marker panel shall also be installed at each end of railing installed adjacent to a two-lane, two-way highway and at the end facing traffic of railing installed adjacent to a one-way roadbed. If the railing is placed on a skew, the marker shall be installed at the end of the skew nearest the traveled way. Type P marker panels shall conform to the provisions in Section 82, "Markers and Delineators," except that the Contractor shall furnish the marker panels.

Except for installing, maintaining and removing traffic control devices, whenever work is performed or equipment is operated in the following work areas Contractor shall close the adjacent traffic lane unless otherwise provided in the Standard Specifications and these contract documents:

- Approach speed of public traffic (Posted Limit over 72 KPH)- Work areas can be within 1.8m of a traffic lane but not on a traffic lane
- Approach speed of public traffic (Posted Limit between 56 and 72 KPH)- Work areas can be within 0.9 m of a traffic lane but not on a traffic lane (Kilometers Per Hour) 8a

For the requirements of this section, Temporary Railing (Type K) shall not be deemed as Construction Area Traffic Control Devices, as defined in Section 12 of the Standard Specifications.

The lane closure provisions of this section shall not apply if the work area is protected by permanent or temporary railing or barrier.

When traffic cones or delineators are used to delineate a temporary edge of traffic lane, the line of cones or delineators shall be considered to be the edge of traffic lane, however, Contractor shall not reduce the width of an existing lane to less than 3m without written approval from the Engineer.

When work is not in progress on a trench or other excavation that required closure of an adjacent lane, the traffic cones or portable delineators used for the lane closure shall be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators shall be not more than the spacing used for the lane closure.

Suspended loads or equipment shall not be moved nor positioned over public traffic or pedestrians.

Full compensation for conforming to the provisions in this section, Public Safety, including furnishing and installing temporary railing (Type K) and temporary crash cushion modules, shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

Fences, temporary railing (Type K), barricades, lights, signs, and other devices furnished,

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erected and maintained by Contractor, at Contractor's expense, are in addition to any construction area traffic control devices for which payment is provided for elsewhere in the specifications.

Pedestrian access facilities shall be provided through construction areas within right of way as specified herein. The surface shall be skid resistant and free of irregularities. Hand railings shall be provided on each side of walkway as necessary to protect pedestrian traffic from hazards due to construction operations. Protective overhead covering shall be provided as necessary to ensure protection from falling objects and drip from overhead structures. Railing shall be constructed of wood, S4S, and shall be painted white. Railing, overhead cover, and walkways shall be maintained in good condition and shall be kept clear of obstructions.

Full compensation for providing pedestrian facilities and protection shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

Signs, lights, flags, and other warning and safety devices and their use shall conform to the requirements set forth in the current Manual of Traffic Controls. Signs or other protective devices furnished and erected by Contractor, at Contractor's expense, as above provided, shall not obscure the visibility of, nor conflict in intent, meaning and function of either existing signs, lights and traffic control devices or any construction area signs and traffic control devices for which furnishing of, or payment for, is provided elsewhere in the specifications. Signs furnished and erected by Contractor, at Contractor's expense, shall be approved by the Engineer as to size, wording and location.

The installation of general roadway illumination shall not relieve Contractor of the responsibility for furnishing and maintaining any of the protective facilities herein before specified.

Construction equipment shall enter and leave the highway via existing ramps and crossovers and shall move in the direction of public traffic. All movements of workmen and construction equipment on or across lanes open to public traffic shall be performed in a manner that will not endanger public traffic.

Contractor's trucks or other mobile equipment which leave a freeway lane, that is open to public traffic, to enter the construction area, shall slow down gradually in advance of the location of the turnoff to give following public traffic an opportunity to slow down.

When leaving a work area and entering a roadway carrying public traffic, Contractor's equipment, whether empty or loaded, shall in all cases yield to public traffic.

Lanes, ramps and shoulders shall be closed in accordance with the details shown on the plans, the provisions of Section 12, Construction Area Traffic Control Devices of the Standard Specifications, and as provided in these specifications.

No material or equipment shall be stored where it will interfere with the free and safe passage of public traffic, and at the end of each day's work and at other times when construction operations are suspended for any reason, Contractor shall remove all equipment and other obstructions from that portion of the roadway open for use by public traffic.

Temporary facilities that Contractor uses to perform the work shall not be installed or placed where they will interfere with the free and safe passage of public traffic.

Temporary facilities that could be a hazard to public safety if improperly designed shall comply with design requirements specified in the contract for those facilities or, if none are specified, with standard design criteria or codes appropriate for the facility involved. Working drawings and design calculations for the temporary facilities shall be prepared and signed by an engineer who is registered as a Civil Engineer in the State of California and shall be submitted to the Engineer for approval pursuant to **SC-51, Technical Submittals**. The submittals shall designate thereon the standard design criteria or codes used. Installation of the temporary facilities shall not start until the Engineer has reviewed and approved the drawings.

Should Contractor appear to be neglectful or negligent in furnishing warning devices and taking protective measures as above provided, the Engineer may direct attention to the existence of a hazard and the necessary warning devices shall be furnished and installed and protective measures taken by Contractor at Contractor's expense. Should the Engineer point out the inadequacy of warning devices and protective measures, that action on the part of the Engineer shall not relieve Contractor from responsibility for public safety or abrogate the obligation to furnish and pay for these devices and measures.

Provision for the payment for signs, lights, flares, temporary railing (Type K), barricades, and other facilities by extra work **GC-38, Public Convenience and Safety** or by contract item as provided in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, shall in nowise relieve the Contractor from the responsibility as provided in this **SC-42.2**.

Except as otherwise provided in this **SC-42.2**, full compensation for conforming to all of the provisions in this **SC-42.2** shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefor.

SC-43 Flagging

Attention is directed to SC-42.1, Public Convenience and SC-42.2, Public Safety, Flaggers while on duty and assigned to traffic control or to give warning to the public that the highway is under construction and of any dangerous conditions to be encountered as a result thereof, shall perform their duties and shall be provided with the necessary equipment in conformance with the current "Instructions to Flaggers" of the Department of Transportation. The equipment shall be furnished and kept clean and in good repair by Contractor at Contractor's expense.

The cost of furnishing all flaggers, including transporting flaggers, to provide for public traffic through the work under the provisions in SC-42.1 and SC 42.2 will be borne equally by BATA and Contractor. The cost of providing stands or towers for use of flaggers shall be considered as part of cost of furnishing flaggers. The price per hour for Flagging shall not exceed \$35.00 per unit (hour), which is considered to constitute BATA's portion of the flagging cost.

SC-44 Clearing and Grubbing

In addition to any requirements which may be included in **GC-53, Cleanup**, clearing and grubbing shall conform to the provisions in Section 16, "Clearing and Grubbing," of the Standard Specifications and these special conditions.

Attention is directed to **SC-14.1, Aerial Deposited Lead**.

Clearing and grubbing operations shall result in no visible dust. No material containing lead shall be deposited on public roads. Contractor shall indemnify BATA and State from any costs due to any discharge of material containing lead.

Vegetation shall be cleared and grubbed only within the excavation and embankment slope lines. At locations where there is no grading adjacent to a bridge or other structure, clearing and grubbing of vegetation shall be limited to 1.5m outside the physical limits of the bridge or structure.

Existing vegetation outside the areas to be cleared and grubbed shall be protected from injury or damage resulting from Contractor's operations.

Activities controlled by Contractor, except cleanup or other required work, shall be confined within the graded areas of the roadway.

Nothing herein shall be construed as relieving Contractor of the responsibility for final cleanup of the highway as provided in **GC-53, Cleanup**, and **GC-55, Final Inspection and Acceptance of All or a Portion of the Work**.

Payment

Clearing and grubbing shall be considered as included in the prices paid for the various items of work no additional compensation shall be allowed therefor.

SC-45 Equipment And Plants

Only equipment and plants suitable to produce the quality of work and materials required will be permitted to operate on the project.

Plants shall be designed and constructed in accordance with general practice for the equipment and shall be of sufficient capacity to ensure the production of sufficient material to carry the work to completion within the time limit.

The Contractor shall provide adequate and suitable equipment and plants to meet the above requirements, and when ordered by the Engineer shall remove unsuitable equipment from the work and discontinue the operation of unsatisfactory plants.

The Contractor shall identify each piece of equipment other than hand tools, by means of an identifying number plainly stenciled or stamped on the equipment at a conspicuous location, and shall furnish to the Engineer a list giving the description of each piece of equipment and its identifying number. In addition, the make, model number and empty gross mass of each unit of compacting equipment shall be plainly stamped or stenciled in a conspicuous place on the unit. The gross mass shall be either the manufacturers rated mass or the scale weight, expressed in metric units.

The make, model, serial number and manufacturer's rated capacity in metric units for each scale shall be clearly stamped or stenciled on the load receiving element and its indicator or indicators. All meters shall be similarly identified, rated and marked. Upon request of the Engineer, the Contractor shall furnish a statement by the manufacturer, designating sectional and weighbridge capacities of portable vehicle scales.

SC-46 Preservation of Property

Attention is directed to **GC-45, Protection and Restoration of Property**, and these special conditions.

Existing trees, shrubs and other plants, that are not to be removed as shown on the plans or specified in these special provisions, and are injured or damaged by reason of the Contractor's operations, shall be replaced by the Contractor.

The minimum size of tree replacement shall be 600mm box and the minimum size of shrub replacement shall be No. 15 container. Replacement ground cover plants shall be from flats and shall be planted 300mm on center. Replacement of Carpobrotus ground cover plants shall be from cuttings and shall be planted 300mm on center.

Replacement planting shall conform to the requirements in Section 20-4.07, Replacement, of the Standard Specifications. Contractor shall water replacement plants in conformance with the provisions in Section 20-4.06, Watering, of the Standard Specifications.

Damaged or injured plants shall be removed and disposed of outside the highway right of way in conformance with the provisions in **GC-51 Disposal of Materials**. Replacement planting of injured or damaged trees, shrubs and other plants shall be completed not less than 20 working days prior to acceptance of the contract. Replacement plants shall be watered as necessary to maintain the plants in a healthy condition. All landscaping within any project temporary construction easement (TCE) or property of which BATA has been granted a permit to enter during the construction period shall be left, upon project completion, in a condition equal to or better than the pre-existing construction condition. Landscaping, hardscape, etc. which is damaged shall be replaced in these areas at the Contractor's expense. Prior to the start of any

work within a TCE, Contractor shall provide the Engineer with a photo record, with date shown on the photo, of the existing condition prior to construction. Additionally, Contractor shall tour the area with the Engineer, to confirm the condition of the area with the photos. Failure of the contractor to provide and perform these duties shall result in Contractor restoring the TCE to the satisfaction of the engineer at Contractor's expense. Full compensation for furnishing all labor, materials, equipment and incidentals, and for doing all work involved shall be considered as included in the prices for the various contract items of work and no additional compensation will be allowed therefor.

SC-47 Utilities

The Contractor shall make arrangements to obtain electrical power, water or compressed air or other utilities required for the Contractor's operations and shall make and maintain the necessary service connections at the Contractor's own expense.

SC-48 Sanitary Facilities

State sanitary facilities will not be available for use by the Contractor's employees.

SC-49 Measurement of Quantities

All work to be paid for at a contract price per unit of measurement will be measured by the Engineer in accordance with these contract documents.

Unless shipped by rail, material paid for by mass shall be weighed on scales furnished by and at the expense of the Contractor or on other sealed scales regularly inspected by the Division of Measurement Standards or its designated representative.

Weighing, measuring and metering devices used to measure the quantity of materials used in the work shall be suitable for the purpose intended and shall conform to the tolerances and specifications as outlined in Title 4, Chapter 9 of the California Code of Regulations, the provisions of the California Business and Professions Code, Division 5, and these specifications. Devices not Type-approved by the Division of Measurement Standards shall be Type-approved in conformance with the requirements in California Test 109.

Elements of the material plant controller that affect the accuracy or delivery of data shall be made available for the application of security seals. These devices will be inspected and adjusting elements sealed prior to the first production of materials for the contract. The security seals will be furnished by the Engineer. Material production shall cease when alteration, disconnection or otherwise manipulation of the security seals occur, and production shall not resume until the device is inspected and resealed by the Engineer.

Weighing, measuring or metering devices used to determine the quantity of materials to be paid for will be considered to be "commercial devices" and shall be sealed by the Division of Measurement Standards or its authorized representative as often as the Engineer may deem necessary. The installation of all portable vehicle scales must be approved by the Engineer prior to sealing.

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Vehicle scales shall be of sufficient size to permit the entire vehicle or combination of vehicles to rest on the scale deck while being weighed. Combination vehicles may be weighed as separate units provided they are disconnected while being weighed. The maximum concentrated load shall not exceed the manufacturer's designed sectional capacity of the scale.

Weighing, measuring or metering devices required by these specifications for the purpose of proportioning a material or product will be considered to be "non-commercial devices" and shall be tested and approved in conformance with the requirements in California Test 109. This testing shall be done by one of the following, in the presence of the Engineer, as often as the Engineer deems necessary:

- (1) A County Sealer of Weights and Measures;
- (2) A Scale Service Agency; or
- (3) A Division of Measurement Standards Official.

The Contractor shall notify the Engineer at least twenty-four (24) hours in advance of testing the device.

Under supports for scale bearing points shall be constructed of Portland cement concrete produced from commercial quality aggregates and cement, which contains not less than 275kg of cement per cubic meter. Undersupports shall be constructed in a manner to prevent any shifting or tilting of the support and shall have a minimum height of 350mm above ground line. The footings shall have a minimum depth of 150mm below the ground line. The bearing surface of the footings shall have a minimum width of 760mm and shall be of sufficient area so the pressure does not exceed 200kPa. Adequate drainage shall be provided to prevent saturation of the ground under the scale. Scale bulkheads shall be of adequate material and strength to resist displacement. If timber bulkheads are used, the minimum cross section shall be 200mm x 200mm. Wedges shall not be used to shim the supports. If shimming is necessary, the shimming shall be done by securely attached metal shims, or by grouting. Shimming shall not exceed 75mm. The approach ramps shall be level with the scale deck for a distance of not less than one-half the length of the scale deck. The mechanical indicating elements shall be installed level and plumb and shall be rigidly mounted upon a concrete foundation.

The lever system and mechanical indicating elements of hopper scales shall be rigidly attached to non-yielding supports in such a manner as to prevent any loss in weight due to bending and distortion of the supports.

When a multiple beam type scale is used in proportioning materials, an over and under indicator shall be provided which will give positive visible evidence of the amount of any over and under weight. The indicator shall be so designed that the indicator will operate during the addition of the last 90kg of any weighing. The over-travel of the indicator shall be at least one-third of the loading travel. Indicators shall be enclosed against moisture and dust.

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Over and under dials, and other indicators for weighing and measuring systems used in proportioning materials shall be grouped so that the smallest increment for each indicator can be accurately read from the point at which the proportioning operation is controlled.

The Contractor shall bear the expense of all service fees for testing and approving of "non-commercial devices." The cost of the equipment, labor and materials furnished by the Contractor to assist in the testing of weighing, measuring or metering devices will be considered as included in the contract prices paid for the various contract items of work requiring the weighing, measuring or metering and no separate payment will be made therefor.

Whenever pay quantities of material are determined by weighing, the scales shall be operated by a weighmaster licensed in conformance with the requirements in the California Business and Professions Code, Division 5, Chapter 7. The Contractor shall furnish a Public weighmasters certificate or certified daily summary weigh sheets. A representative of the Department may, at the discretion of the Engineer, be present to witness the weighing and to check and compile the daily record of the scale weights.

When required by the Engineer, the operator of each vehicle weighed shall obtain a weight or load slip from the weigher and deliver that slip to the Engineer at the point of delivery of the material.

If material is shipped by rail, the car mass will be accepted provided that actual mass of material only will be paid for and not minimum car mass used for assessing freight tariff, and provided further that car mass will not be acceptable for material to be passed through mixing plants.

Vehicles used to haul material being paid for by mass shall be weighed empty daily and at additional times as the Engineer may direct. Each vehicle shall bear a plainly legible identification mark. Vehicles may from time to time be required by the Engineer to have the mass of the material to be paid for verified by weighing the empty and loaded vehicle on such other scales as the Engineer may designate.

Materials which are specified for measurement by the cubic meter "measured in the vehicle" shall be hauled in vehicles of such type and size that the actual contents may be readily and accurately determined. Unless all vehicles are of uniform capacity, each vehicle must bear a plainly legible identification mark indicating its water level capacity. Vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery. Loads hauled in vehicles not meeting the above requirements or loads of a quantity less than the capacity of the vehicle, measured after being leveled off as above provided, will be subject to rejection, and no compensation will be allowed for that material.

When material is to be measured and paid for on a volume basis and it is impractical to determine the volume by the specified method of measurement, or when requested by the Contractor in writing and approved by the Engineer in writing, the material will be weighed in accordance with the requirements specified for mass measurement and the mass will be converted to volume measurement for payment purposes. Factors for conversion from mass

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measurement to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before that method of measurement of pay quantities will be adopted.

Quantities of material wasted or disposed of in a manner not called for under the contract; or rejected loads of material, including material rejected after it has been placed by reason of the failure of the Contractor to conform to the provisions of the contract; or material not unloaded from the transporting vehicle; or material placed outside of the lines indicated on the plans or established by the Engineer; or material remaining on hand after completion of the work will not be paid for, and those quantities will be deducted from the final total quantities. No compensation will be allowed for hauling and disposing of rejected material.

The mass of all aggregate or other roadway material which is to be paid for on a mass basis, except imported borrow, imported topsoil, straw, fiber, aggregate subbases, aggregate bases or aggregate for cement treated bases, will be determined by deducting from the mass of material, the mass of water in the material at the time of weighing in excess of 3 percent of the dry mass of the material. When imported borrow, imported topsoil or aggregate subbase is being paid for on a mass basis, the mass to be paid for will be determined by deducting from the mass of the material, the mass of water in the material at the time of weighing in excess of 6 percent of the dry mass of the material. When straw is being paid for on a mass basis, the mass to be paid for will be determined by deducting from the mass of straw, the mass of water in the straw at the time of weighing in excess of 15 percent of the dry mass of the straw. When fiber is being paid for on a mass basis, the mass of water in the fiber at the time of weighing shall not exceed 15 percent of the dry mass of the fiber. No deduction will be made for the mass of water in fiber. The percentage of water in the material shall be determined by California Test 226. The mass of aggregate base and aggregate for cement treated bases which are to be paid for on a mass basis, will be determined as provided in Section 26, "Aggregate Bases," and Section 27, "Cement Treated Bases," of the Standard Specifications respectively.

The mass of water deducted as provided in this Section will not be paid for.

Full compensation for all expense involved in conforming to the requirements specified in this Section shall be considered as included in the unit prices paid for the materials being measured or weighed and no additional compensation will be allowed therefor.

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SC-50 CONTRACT DATA REQUIREMENTS LIST

DESCRIPTION		REFERENCE *	DUE DATE/FREQUENCY
1.	Construction Agreement	Section 4.0	No later than (NLT) six (6) Calendar days following Notice of Award (NOA)
2.	Performance Bond	SC-3	“
3.	Payment Bond	SC-3	“
4.	Certificate(s) of Insurance	SC-2	“
5.	Alternate Form W-9	Section 4.0	“
6.	Material Suppliers List, including subcontractors.	—	NLT ten (6) calendar days following NOA
7.	Personnel to sign Change Orders	GC-24	“
8.	Emergency Contacts	GC-24	“
	EEO Officer – Contractor and all subcontractors	GC-8	“
9.	Full time Safety Representative(s) – Name(s) and resume(s) of person(s).	SC-13	“
10.	Prevailing Wages Rates	GC-8.3	“
11.	Certified Rates	GC-58	Weekly
12.	Not Used		
4.	Executed Subcontracts	GC-20	NLT thirty (30) calendar days of NOA
5.	Equipment and Plants – List of Equipment	SC-45	Monthly

* **GC = General Condition**
SC = Special Condition

This list is intended to summarize the requirements for submittal of documents as specified in the Contract Documents. If conflicts exist between the list and the referenced paragraph, the referenced paragraph will take precedence. Contractor shall refer to the Special Conditions, General Conditions for required contract data.

For technical documents, refer to Technical Submittals List found in SC-51 of the Special Conditions.

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SC-51 TECHNICAL SUBMITTALS LIST

	ITEM	REFERENCE *	DUE DATE/ FREQUENCY	COMMENT S
1.	Schedule of Owner Furnished Materials	SC-8	NLT six calendar days after Notice to Proceed	6 copies
2.	Submittal of all Field Notes & Cut Sheets		No less than three (2) weeks in advance of work operation	6 copies
3.	Injury Prevention Plan (IPP)	SC-13	NLT six calendar days following NOA	6 copies
4.	Site Safety Plan (s)	SC-13 GC-38	NLT six calendar days following NOA	6 copies
5.	Emergency Action Plan	SC-13.6	NLT six calendar days following NOA	6 copies
6.	Copies of all accident investigations	SC-13.6	NLT five calendar days following accident	6 copies
7.	Copies of annual and quadrennial crane certifications	SC-13.6	NLT five calendar days prior to a crane working onsite	6 copies
8.	Copies of Job Hazard Analysis	SC-13.6	NLT five calendar days prior to operation being performed	6 copies
9.	List of first aid / CPR trained employees and proof of training	SC-13.7	NLT six calendar days following NOA	6 copies
10.	Material Safety Data Sheets (MSDS)	SC-14	NLT ten calendar days following NOA	6 copies
11.	Aerially Deposited Lead Submittal	SC-14.1	At least fifteen calendar days prior to beginning any work in areas containing Aerially Deposited Lead	6 copies
12.	Electrical Utility Shutdowns	SC-17	At least fifteen calendar days prior notice	6 copies
13.	Schedule of Values	SC-20	With Bid submittal	1 copy
14.	Interim CPM Schedule	SC-23 GC-31	NLT six calendar days following NOA	3 copies
15.	Baseline CPM Schedule	SC-23 GC-31	NLT six calendar days following NOA	3 copies
16.	Monthly CPM Schedule Updates	SC-23 GC-31	five days in advance of progress payment	3 copies
17.	Quality Assurance Plan	SC-33	NLT six calendar days following NOA	6 copies
18.	Debris Containment and Collection Program	GC-53	NLT ten calendar days following NOA	6 copies
19.	WPCP (Water Pollution Control Plan)	SG-24	NLT six calendar days following NOA	10 copies
20.	Product Data Sheets	GC-43	NLT calendar six days following NOA	6 copies
21.	Warranties	GC-73	Before Final Acceptance	As Required

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	ITEM	REFERENCE *	DUE DATE/ FREQUENCY	COMMENTS
22.	Disposal – Submit Sampling and Analysis Plan		At least fifteen (15) days prior to beginning sampling or analysis	6 copies
23.	Sampling and Analysis Plan		NLT fifteen (15) days before any sampling or analysis	6 copies
24.	Health and Safety Plan		At least six calendar days prior to beginning work	6 copies
25.	Welding Quality Control Plan		Within seven calendar days prior to the performance of any welding	As Required
26.	Operations & Maintenance Manuals		Before Final Acceptance	As Required
27.	Written Schedule of Planned Closures		One (1) week in advance of any lane closure	6 copies
28.	Amendment to the Closure Schedule		At least three days in advance of a planned closure	6 copies
29.	Not Used			
30.	Shop Drawings		No less than three (3) weeks in advance of work operation	6 copies
31.	Not Used			
32.	Not Used			
33.	Cost Breakdown for Electrical Work		NLT six calendar days after Notice to Proceed	6 copies
34.	Not Used			

The above table represents only a partial listing of submittal requirements. The above list is a reminder to the Contractor of his responsibility to submit submittals in a timely manner.

The technical submittal list is intended to summarize the requirements for submittal of documents as specified in the Contract Documents. If conflicts exist between the list and the referenced paragraph, the referenced paragraph will take precedence.

SECTION 7.0 GENERAL CONDITIONS

7.1 Legal Responsibilities and Relationships

GC-1 Applicable Law and Jurisdiction

This Contract incorporates provisions required by the laws of the State of California and the Federal Government. It shall be the Contractor's responsibility to determine the applicability of State and Federal laws, rules and regulations to the work to be performed under this Contract.

This Contract shall be governed by California law. Any lawsuit or legal action arising from this Contract shall be commenced and prosecuted in the courts of Alameda County, California.

GC-2 Compliance With Laws and Regulations

The Contractor shall keep itself informed of, comply with, and shall cause all of its agents, employees, suppliers and subcontractors of any tier, to observe and comply with all applicable Federal, State, and local laws, regulations, and policies, including, but not limited to, all applicable terms and conditions prescribed for third party contracts by the U.S. Department of Transportation (DOT). Contractor shall indemnify, defend, and hold harmless the State, BATA, the Municipality or other entity within whose jurisdiction or on whose property the work is being performed, and Commissioners, their Board of Supervisors, Board of Directors, Councils, officers, agents, consultants and employees from any claim, liability, loss, injury or damage arising out of, or in connection with, the performance of this Contract by the Contractor and/or its agents, employees or subcontractors, excepting only loss, injury or damage caused by the active or sole negligence or willful misconduct of personnel employed by the indemnitees.

GC-3 Contractors' Licensing Requirements

Contractors are required by law to be licensed in the State of California and are regulated by the Contractors' State License Board. Any questions related thereto may be referred to the Registrar of the Board whose address is:

Contractors' State License Board
1020 N Street
Sacramento, CA 95814

GC-4 Independent Contractor

The Contractor represents that it is fully experienced and properly qualified to perform the class of work provided for herein, and that it is properly licensed, equipped, organized and financed to perform such work. The Contractor shall act as an independent contractor and not as the agent or employee of BATA in performing the Contract, maintaining complete control over its employees. Nothing contained in this Contract or any subcontract awarded by the Contractor shall create any contractual relationship between any such subcontractor and BATA, and the Contractor shall perform all work in accordance with its own methods subject to compliance with the Contract.

GC-5 Permits, Licenses, Fees and Notices

As specified in **Section 6.0 - Special Conditions**, or as otherwise required by law, the Contractor shall, before beginning any work which requires a permit or similar authorization, secure and pay for all necessary licenses, fees, bonds, charges, inspections, customs or import duties, permits, and similar authorizations from all governmental authorities required to fulfill the Contract requirements and the Contractor's obligations.

GC-6 Nondiscrimination

The Contractor shall comply with Section 1735 of the California Labor Code, which reads as follows:

“No discrimination shall be made in the employment of persons upon public works because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, or sex of such persons, except as provided in Section 12940 of the Government Code, and every contractor for public works violating this section is subject to all the penalties imposed for a violation of this chapter.”

In the performance of this Contract, the Contractor and its subcontractors shall not unlawfully discriminate, harass or allow harassment, against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), mental disability, medical condition (cancer), marital status, age (over 40), and the denial of family care leave. Contractor and its subcontractors shall ensure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. Contractor and its subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code §12900 *et seq.*) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285.0 *et seq.*). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12290 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations are incorporated into this Contract by reference and made a part hereof as if set forth in full. The Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement. The Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under this Contract. The Contractor and its subcontractors shall permit access to all records of employment, employment

advertisements, application forms, and other pertinent data and records by the State Fair Employment Practices and Housing Commission, or any other agency of the State of California designated by the State, for the purpose of investigation to ascertain compliance with this clause.

GC-7 Prohibited Interests

No BATA Commissioner, officer, or employee shall have any direct or indirect interest in this Contract or the proceeds thereof.

GC-8 Labor Provisions

8.1 Safety Pursuant to Section 107 of the Contract Work Hours and Safety Standards Act and Department of Labor Regulations at 29 CFR Section 1926, no laborer or mechanic working on this Contract shall be required to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to their health and safety as determined under applicable health standards promulgated by the Secretary of Labor.

In addition to the Contractor's own safety procedures, and any safety procedures required under Federal, state, or local laws or regulations, including compliance with the provisions of the California Occupational Safety and Health Act of 1973 and any additional safety requirements contained in **Section 6.0 Special Conditions**, Contractor shall implement and enforce all safety requirements that are determined by BATA's Safety Coordinator to be applicable to the performance of any Work under this Contract.

8.2 Overtime Requirements Neither the Contractor nor any subcontractor of any tier shall require or permit any worker to work in excess of eight (8) hours in any day or in excess of forty (40) hours in any work week (defined as seven (7) sequential calendar days) unless such worker receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of eight hours in any day or in excess of forty (40) hours in such work week, whichever is greater. Failure to comply with the preceding requirements shall subject The Contractor or any subcontractor of any tier to the penalties specified in Labor Code §1813.

8.3 Prevailing Wage Rates Pursuant to appropriate Sections of the Labor Code of the State of California, the Director of the California Department of Industrial Relations has ascertained the general prevailing rate of wages (which rate includes employer payments for health and welfare, vacation, pension, and similar purposes) applicable to the Work to be performed under this Contract, for straight time, overtime, Saturday, Sunday and holiday work. Said prevailing wage rates are incorporated herein by reference. These wage rates are available through the California State Department of Industrial Relations, <http://www.dir.ca.gov>. The Contractor shall post a copy of the prevailing wage rates at the jobsite or material staging area.

Workmen employed in the work must be paid at the rates at least equal to the prevailing wage rates as adopted. If Contractor uses a craft or classification not shown on the prevailing

wage determinations, the Contractor may be required to pay the wage rate of that craft or classification most closely related to it as shown in the general determinations effective at the time of Contract award.

8.4 Liability for Unpaid Wages In the event of any violation of the clause set forth in subparagraph (b) (1) of 29 CFR Section 5.5, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages.

8.5 Withholding for Unpaid Wages and Liquidated Damages DOT or BATA may upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any monies payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (b) (2) of 29 CFR Section 5.5.

8.6 Travel and Subsistence Payments Pursuant to Labor Code §1773.8, the Contractor shall be liable for travel and subsistence payments to each worker needed to execute the Work, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with the provisions of Labor Code §1773.8.

8.7 Retention of Labor Records In the performance of the work specified in this Contract, the prime Contractor shall be responsible for compliance with California Labor Code Section 1776 pertaining to payroll records. Contractor and all of its subcontractors of any tier shall maintain all payrolls and basic payroll records during the course of the work and shall preserve them for a period of three (3) years from the completion of the Contract. Such records shall contain the names of all employees, their address, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. These records shall be made available by the Contractor or any of its subcontractors of any tier for inspection, copying, or transcription by authorized representatives of DOT, BATA or the Department of Labor, and the Contractor or any of its subcontractors of any tier shall permit such representatives to interview employees during working hours on the job.

8.8 Employment of Apprentices In the performance of the work specified in this Contract, the prime Contractor shall be responsible for compliance with California Labor Code Section 1777.5, pertaining to the employment of registered apprentices.

8.9 Subcontracts The Contractor shall insert in all of its subcontracts the clauses set forth in this **GC-8, Labor Provisions** and also a clause requiring its subcontractors to include these clauses in any lower tier subcontracts. The Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in this **GC-8, Labor Provisions**. Pursuant to Public Contract Code §6109, the Contractor is prohibited from

performing work on the Project with a subcontractor who is ineligible to perform work on a public works project pursuant to Sections 1777.1 or 1777.7 of the California Labor Code.

GC-9 Hazardous Materials or Unusual Conditions

In the event underground tanks, vaults, materials or unusual conditions as specified in Public Contract Code §7104(a) are encountered during prosecution of the Work, Contractor shall immediately, and before disturbing such conditions, notify BATA in writing of any:

- a. Material that the Contractor believes may be material that is hazardous waste as defined in Section 25117 of the Health and Safety Code that is required to be removed to a Class I, II or III disposal site in accordance with the provisions of existing law.
- b. Subsurface or latent physical conditions at the site differing from those indicated.
- c. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract.

BATA shall promptly investigate the conditions, and if it finds the conditions to be materially different or to involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work, shall issue a Change Order under the procedures described in **GC-65, Change Requests and Change Notices** and **GC-66, Change Order**. Any suspension of Work shall be administered in accordance with the provisions of **GC-69 – Suspension of the Work**. If a dispute arises between BATA and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date provided for by this Contract, but shall proceed with all work to be performed under this Contract; *provided, however*, the Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

GC-10 Not Used

GC-11 Not used

GC-12 Archaeological/Historical Discoveries

If this project has been designated in the Section **1.0 Invitation to Bidders** as an archaeological sensitive project, refer to **Section 6.0 Special Conditions**.

Should any archaeological or historical artifacts or skeletal material be discovered or unearthed during construction activities, all work within ten (10) meters of the find shall be halted. The Contractor (Subcontractor) [or Engineer or Inspector as appropriate] shall immediately notify BATA, and BATA will initiate procedures in accordance with 36 CFR 800.11, State Law (California Public Resources Code Section 5097.98, Health and Safety Code Section 7050.5, and Alameda County Ordinance Code Sections B6-16 through B6-23. Construction activities within ten (10) meters of the find shall remain halted until authorization is obtained from the

Environmental Program Manager, or the Environmental Program Manager's named and designated agent, that construction in the vicinity of the find may resume.

In the event of work suspension pursuant to this section, the Contractor shall, within twenty-four (24) hours, notify BATA of the costs involved resulting from said work stoppage. The Contractor shall maintain a log of each such stoppage of work, setting forth the date and time of notification of work stoppage, date and time of actual cessation of operations in the area, and date and time of commencement of operations and costs incurred herein. The Contractor shall submit a claim for reimbursement of such costs within seventy-two (72) hours thereof and shall notify BATA of the anticipated amount of claim within twenty-four (24) hours of said work suspension. In the event of work suspension thereunder, the Contractor shall exert all reasonable efforts to otherwise utilize labor and equipment affected by the suspension in other portions of the project.

GC-13 Not Used

GC-14 Patent Rights

Any discovery or invention which is an integral part of the items being furnished under this Contract, as well as all information, design, specifications, data and findings which arise or is developed in the course of performing the work under this Contract, shall become the property of BATA.

GC-15 Intellectual Property, Copyright and Patent Infringement

Contractor, upon BATA's request, shall defend BATA and Caltrans against any claim against BATA and/or Caltrans for patent, copyright, trademark, trade secret, or other intellectual property infringement based upon BATA's or Caltrans' use of any work, goods, or services provided by the Contractor pursuant to this Contract. If BATA requests the Contractor to defend against such claim, Contractor shall hold BATA and Caltrans harmless from, and indemnify BATA and Caltrans Municipality for, any liability arising from the claim, provided that (i) BATA notifies Contractor in writing promptly, but not more than thirty (30) days after BATA has actual notice of the claim; (ii) Contractor has sole control of the defense and all related settlement negotiations, unless otherwise agreed by the Parties; and (iii) BATA gives Contractor all available information and reasonable assistance for that defense. If Contractor fails or refuses to defend any such claim, BATA and/or Caltrans may assume control of the defense and Contractor shall indemnify and hold BATA and Caltrans harmless for all fees, costs and expenses associated with or arising from such defense.

This obligation shall not apply when the alleged infringement arises entirely from modification of the work, goods, or services by BATA or Municipality without the Contractor's approval.

GC-16 Rights in Technical Data

BATA shall have the right to use, duplicate or disclose, in whole or in part, in any manner and for any purpose whatsoever, and to have or permit others to use: Any manuals, instructional materials prepared for installation, operation, maintenance or training purposes and technical

data pertaining to end items, components or processes which were prepared for the purpose of identifying sources, size, configuration, mating and attachment characteristics, functional characteristics and performance requirements ("form, fit and function" data; e.g., specification control drawings, catalog sheets, outline drawing). The term Technical Data as used herein means technical writing, sound records, pictorial reproductions, drawings, or other graphic representations and works of a technical nature, whether or not copyrighted, which are specified to be delivered pursuant to this Contract. The term does not include financial reports, costs analyses, and other information incidental to contract administration.

For copyrighted material, the Contractor agrees to and does hereby grant to BATA and Caltrans, and to their Commissioners, Directors, officers, agents and employees acting within the scope of their official duties, a royalty-free, nonexclusive and irrevocable license for BATA and/or Caltrans to publish, translate, reproduce, deliver, perform, dispose of, and to authorize others to use, all Technical Data now or hereafter covered by copyright.

No such copyrighted matter shall be included in Technical Data furnished hereunder without written notice of the copyright owner granting BATA and State consent to use such copyrighted matter in the manner above described.

The Contractor shall report to BATA promptly and in reasonable written detail each notice or claim of copyright infringement received by the Contractor with respect to any Technical Data delivered hereunder.

BATA reserves the right to use the design and the tooling developed for the furnishing of equipment under this Contract in future contracts based on this specification. The Contractor shall maintain design data, including drawings, layouts, and any relevant engineering data, and all necessary tooling in good order for a minimum of four (4) years after final acceptance of the last items furnished under this Contract, and shall transfer that data, including tooling, to BATA upon request at no cost to BATA. All plans, drawings, diagrams, schematics, and specifications shall become the property of BATA, unless otherwise designated by BATA.

GC-17 Ownership of Work and Material

BATA shall own all materials, work in progress, and finished goods produced by the Contractor pursuant to this Contract, for which progress payments have been made and which have been satisfactorily delivered to a designated area. Such ownership shall be free of all encumbrances, or, if it is not, BATA may obtain a priority lien secured pursuant to appropriate sections of the Uniform Commercial Code and other applicable state laws or local ordinances to secure its title rights. Nevertheless, the Contractor shall be responsible for risk of loss for those items of Work for which the Contractor has care, custody and control, until Final Acceptance.

Unless otherwise specifically provided in this Contract, the Contractor shall provide and pay for materials, equipment, tools, utilities, transportation, and other facilities and services necessary for the prosecution of the Work provided for in this Contract.

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The Contractor will submit to BATA a "Final Release of All Liens and Claims" as a condition precedent to receiving final payment under this Contract.

GC-18 Title and Risk of Loss

Unless otherwise provided for, title to the Work and risk of loss shall pass to BATA upon final acceptance of the Work, and the Contractor shall furnish or execute all necessary documents of title at that time.

GC-19 Assignment and Delegation

The Contractor shall not assign any of its rights or delegate any of its responsibilities under this Contract without the prior written consent of BATA.

GC-20 Subcontracts

The Contractor shall be fully responsible and liable for the products and actions of all subcontractors and suppliers of any tier, and shall include in each subcontract any provisions necessary to make all of the provisions of this Contract fully effective. The Contractor shall provide all necessary plans, specifications, schedules, and instructions to its suppliers and subcontractors to enable them to properly perform their work. The Contractor shall submit executed copies of all subcontracts entered into pursuant to this Contract to BATA within sixty **(60) calendar days** from issuance of a Notice of Award.

GC-21 Waiver and Non-waiver

A waiver by one party of a right to a remedy for breach of this Contract by the other party shall not be deemed to waive the right to a remedy for a subsequent breach by the other party. BATA's acceptance of goods, or services or payment under this Contract, shall not preclude BATA from recovering against the Contractor or the Contractor's surety for damages due to the Contractor's failure to comply with this Contract.

GC-22 Antitrust Claims

In entering into a public works contract, or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor agrees to assign to the awarding body all rights and title to, and all interest in all causes of action it may have under Section 4 of the Clayton Act, or under the Cartwright Act, arising from the purchases of goods, services, or materials pursuant to the public works contracts or subcontracts. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgement by the parties.

GC-23 Stop Notices

BATA will withhold payments otherwise due the Contractor in order to satisfy Stop Notices which have been properly filed, in accordance with the requirements of California Civil Code Title 15, Chapter 4, regarding Stop Notices. The Contractor shall include this **GC - 23, Stop Notices** in all subcontracts and similar documents entered into by Contractor for the performance of Work under this Contract.

7.2 AUTHORIZED REPRESENTATIVES AND COMMUNICATIONS

GC-24 Authorized Representatives

The Contractor shall designate, in writing, before starting work, an Authorized Representative who, during performance of the Contract, shall have full authority to act on the Contractor's behalf in all matters within the scope of this Contract.

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When the Contractor is comprised of two or more persons, firms, partnerships, or corporations functioning on a joint venture basis, said authorized representative shall have the authority to represent and act for the joint venture.

Said authorized representative shall be present at the site of the Work at all times while work is actually in progress on the Contract. When work is not in progress and during periods when work is suspended, arrangements acceptable to BATA shall be made for any emergency work that may be required.

Whenever said authorized representative is not present on any particular part of the Work where BATA may desire to give direction, orders will be given by BATA, which shall be received and obeyed by the superintendent or foremen who may have charge of the particular work in reference to which the orders are given.

Except as hereinafter provided, all orders by BATA shall be given in writing. Those not so given shall be considered to be invalid and not binding. Emergency conditions dealing with safety of persons and protection of property are accepted, and such oral directions will be confirmed in writing as soon as possible, but shall be immediately complied with by Contractor.

BATA will similarly designate, in writing, an Authorized Representative to be its formal contact between BATA and Contractor. Said Authorized Representative will be responsible for all matters relating to the execution of work within the scope of this Contract and will decide all questions which may arise as to the quality or acceptability of the Work and as to the manner of performance and rate of progress of the Work; all questions which may arise as to the interpretation of plans and specifications; all questions as to the acceptable fulfillment of the Contract on the part of Contractor; and all questions as to compensation for work performed.

Matters regarding the terms and conditions of this Contract shall be the responsibility of BATA's General Counsel.

Written notification to the other party shall be provided, in advance, of changes in the name or address or the scope of authority vested in such Authorized Representative.

Each Authorized Representative may, from time to time, delegate to other named individuals certain authority and responsibilities. The names of such individuals, the scope of their authority and responsibility, and the designation of their titles will be communicated to the other party in writing.

The designation of Authorized Representatives of the parties and their delegates as outlined above shall take place at the pre-construction meeting as specified in **GC-26, Pre- Construction Meeting**.

GC-25 Notices and Communications

25.1 Notices All notices and other communications concerning this Contract shall be written in English, shall bear the number assigned to this Contract by BATA and shall follow BATA's correspondence format and reference system. Notices and other communications may be delivered personally, by telegram, by private package delivery, by FAX, or by regular, certified, or registered mail.

The names of the individuals for each of the parties and their addresses to which other communications and correspondence should be delivered will be established and made known to the other party at the pre-construction meeting as specified in **GC-26, Pre-Construction Meeting**.

A notice to BATA will be effective only if it is delivered to BATA's Authorized Representative at the address to be made known to Contractor at the pre-construction meeting as specified in **GC-26, Pre-Construction Meeting**.

A notice to Contractor will be effective only if it is delivered to Contractor's Authorized Representative at the address to be made known to BATA at the pre-construction meeting as specified in **GC-26, Pre-Construction Meeting**.

25.2 Drawing/Plan Clarification An answer from the owner, in response to an inquiry from Contractor, intended to make some requirement(s) of the drawings or plans clearly understood. Drawing clarifications/plan clarifications may be sketches, drawings or in narrative form and will not change any requirement of the drawings or plans. Responses to Contractor inquiries shall be as outlined in the Article 25.3 "Requests for Information" of these General Conditions.

25.3 Requests for Information (RFIs) In the event that Contractor, subcontractor or supplier, at any tier, determines that some portion of the drawings, specifications or other contract documents requires clarification or interpretation by the owner, Contractor shall submit a Request for Information (RFI) in writing to BATA. Requests for Information may only be submitted by Contractor and shall only be submitted on the Request for Information form provided by BATA. Contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed from BATA. In the RFI, Contractor shall set forth its own interpretation or understanding of the requirement along with the reasons why it has reached such an understanding.

BATA will review all RFI to determine whether they are Requests for Information within the meaning of this Contract. If BATA determines that the document is not a RFI it will be returned to Contractor, unreviewed as to content, for resubmittal as the appropriate document required by the subject matter.

Responses to RFI shall be issued within five (5) working days of receipt of the request from Contractor unless BATA determines that a longer period of time is necessary to provide an adequate response. If a longer period of time is determined necessary by BATA, BATA will, within five (5) working days of receipt of the request notify Contractor of the anticipated response time. The five (5) working days referred to herein will start on the date stamped

received "In From Contractor" by BATA and depends on the date stamped "Out to Contractor" by BATA. If Contractor submits a RFI on an activity with five (5) working days or less of float on the current project schedule, Contractor shall mark the RFI as "Critical." Contractor shall not be entitled to any time extension due to the time it takes BATA to respond to such Critical request provided that BATA responds within the five (5) working days set forth above.

Responses from BATA will not change any requirement of the Contract documents unless so noted in the response to the RFI. In the event Contractor believes that a response to a RFI will cause a change to the requirements of the Contract, Contractor shall immediately give written notice to BATA in accordance with GC-65, Change Requests and Change Notices. Failure to give such written notice shall waive Contractor's right to seek additional time or cost in accordance with Section GC-65.1, Change Requests, of the Contract documents.

GC-26 Pre-Construction Meeting

Prior to issuance of a Notice to Proceed, a pre-construction meeting will be held at a time and place to be designated by notice from BATA. At this meeting, detailed procedures will be discussed for handling the following items:

- Authorized Representative
- Correspondence
- Notices
- Change requests and change notices
- Change orders
- Submittals
- Approvals
- Progress payments
- Schedules
- Community relations
- Inspection plans
- Requests for Information (RFI)
- Other pertinent agenda items

GC-27 Project Meetings

BATA will schedule and preside over all meetings (including but not limited to weekly, pre-production, periodic, and special meetings) throughout the progress of the Work. Agendas for the meetings may include, but are not necessarily limited to, discussions of performance observations, problems, conflicts, schedules, delivery schedules, supplier fabrication, quality standards, Contract modifications, and any other topics that BATA determines to be relevant to the project. Contractor attendance at these meetings is mandatory.

GC-28 Publicity Releases

All publicity releases or releases of reports, papers, articles, maps, or other documents in any way concerning this Contract or the Work hereunder which Contractor or any of its subcontractors desires to make shall be subject to approval by BATA prior to release.

7.3 TIME FOR PERFORMANCE OF WORK

GC-29 Notice to Proceed

Contractor shall commence performance of Work under this Contract immediately after receipt of the Notice to Proceed issued by BATA, and shall continuously and diligently prosecute the Work to completion on or before the time or times set forth in **Section 6.0 Special Conditions** of this Contract. Any work performed or expenses incurred by Contractor prior to Contractor's receipt of Notice to Proceed shall be entirely at Contractor's risk.

A forty-eight (48)-hour advance notice will be required before starting work. Contract personnel will be allowed on the job site only during normal working hours unless otherwise authorized by BATA.

GC-30 Time of Completion

Time is of the essence in this Contract. Contractor's failure to perform Work, deliver goods, or provide services on time and in accordance with the approved progress schedule shall be a material breach of this Contract.

Time periods measured in calendar days shall be computed by excluding the day upon which the period begins to run and including the last day of the period. A calendar day shall be any day including all legal holidays, Saturday and Sunday.

GC-31 Progress Schedule

Contractor shall develop and maintain progress schedules in CPM format identifying critical events involved in the performance of the Work under the Contract in accordance with the requirements of **Section 6.0 Special Conditions**.

GC-32 Excusable Delays and Extensions of Time

Except with respect to defaults of Subcontractors, neither Contractor nor BATA shall be considered in default by reason of any failure to perform in accordance with the Contract schedule if such failure arises out of causes beyond the control and without the fault or negligence of the defaulting party. Such causes may include, but are not restricted to, acts of God or of the public enemy, acts of the government in its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes or other labor disputes, freight embargoes, and unusually severe weather, but in every case the failure to perform must be beyond the control and without the fault or negligence of the defaulting party. If the failure to perform of either Contractor or BATA is caused by the default of a Subcontractor or a third party Contractor to

BATA, and if such default arises out of causes beyond the control of all the parties, and without the fault or negligence of any of them, neither Contractor nor BATA shall be in default by reason of any such failure to perform. As used herein, the terms "Subcontractor" and "Subcontractors" mean Subcontractor(s) or Supplier(s) to Contractor at any tier.

GC-33 Failure to Complete the Work on Time

If the Work is not completed by Contractor in the time specified, as that time may be extended as authorized elsewhere in the Contract, it is understood that BATA will suffer damage; and, it being impracticable and extremely difficult to determine the amount of actual damage, it is agreed that Contractor shall pay as fixed and liquidated damages, and not as a penalty, the sum set forth in **Section 6.0 Special Conditions** of the Contract for each calendar day of delay until the Work is completed and accepted, and Contractor and its surety shall be liable for the amount thereof.

7.4 PERFORMANCE OF WORK

GC-34 Not Used

GC-35 Temporary Construction Facilities and Utilities

Contractor shall furnish all temporary construction facilities, utilities, and services that are necessary to prosecute the Work. This includes, but is not limited to, fencing, flagmen, sanitary facilities, security, power, water and weather protection. Contractor shall remove all temporary facilities upon completion of the Work or when they are no longer needed for Contractor's purposes, whichever is earlier.

GC-36 Character of Workmen

If any Subcontractor or person employed by Contractor shall appear to BATA to be incompetent or to act in a disorderly, improper or unsafe manner, such person shall be discharged immediately on the request of BATA, and such person shall not again be employed on the Work.

GC-37 Working Environment

Contractor shall ensure and maintain a working environment free of personal harassment and intimidation between Contractor's forces and BATA employees and members of the public at all BATA project sites and in all BATA facilities at which Contractor's forces are assigned to work. Conduct that creates an intimidating, hostile, or offensive working environment is prohibited. Failure to comply with the above will be considered a material breach of this Contract.

GC-38 Public Convenience and Safety

Contractor shall so conduct its operations as to offer the least possible obstruction and inconvenience to the public and shall have under construction no greater length or amount of work than can be prosecuted properly with due regard to the rights of the public. Unless

otherwise provided in the Contract, all public traffic shall be permitted to pass through the Work with as little inconvenience or delay as possible. Where possible, such traffic shall be routed on new or existing paved surfaces. Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately by Contractor at its expense. Existing traffic signal and highway lighting systems shall be kept in operation for the benefit of the traveling public during progress of the Work, and other forces will continue routine maintenance of existing systems.

The Contractor shall install signs, lights, flares, barricades, and other facilities for the sole convenience and direction of public traffic and shall furnish competent flaggers or a uniformed police officer whose sole duties shall consist of directing the movement of public traffic through or around the Work.

Work shall be performed in such a manner as to eliminate unnecessary noise, obstructions and other annoyances to occupants. The Contractor will not encumber premises with materials, equipment, and/or parking of cars; Contractor shall store materials, equipment and park cars in designated areas.

See **Section 10.0 Construction Details** for additional traffic control requirements, if any.

GC-39 Cooperation/Coordination and Work by Others

Contractor shall coordinate its Work with all other contractors and subcontractors performing Work on the site. Contractor shall schedule its Work so as to avoid conflicts with other contractors and to avoid damage to completed or incomplete Work. Contractor shall be responsible for any damage to the Work of other contractors or subcontractors if Contractor's actions resulted in such damage and are a) willful or b) negligent and the proximate cause. Contractor shall take immediate action to remedy such damage so as to not delay the immediate prosecution of the Work.

GC-40 Security

Contractor shall provide and be responsible for all security at the job site that is required to protect its material and equipment and all Work in place. Contractor shall also be responsible for providing all security and traffic control required by any city having jurisdiction in the area where Work is being performed.

GC-41 Product Options, Supplier Approval and Substitutions

For products specified in this Contract or in Contractor's submittals by brand name or manufacturer, whether or not followed by the words "or approved equal," Contractor shall select any product or manufacturer named, or shall submit a request to substitute an equal product or manufacturer. As required by the California Public Contracts Code §3400, such request shall be made within thirty-five (35) **calendar days** from date of the Notice of Award in order to receive consideration, unless later submission of a request is agreed to by BATA. The Contractor shall submit a separate request for each substitution. The burden of proof as to the equality of any material, process or article shall rest with Contractor. BATA's determination of the equality or superiority of an article proposed for substitution shall be based upon but need not be limited to

consideration of such factors as are specified in the Technical Specifications; dimensional compatibility with other materials with which it combines to produce a unified design system; all aspects of finished appearance including form, texture, and color, as it affects other design elements. In the event an approved substitution is more expensive than the specified materials, process or article, the difference in cost of such material, process or article so furnished shall be borne by Contractor. Contractor may not make a substitution without BATA's prior written approval. If applicable, specific requirements for the submittal of such requests will be contained in **Section 6.0 Special Conditions**.

BATA shall approve or disapprove Contractor's request for substitution of suppliers or products within thirty (30) days of BATA's receipt of all information required by BATA for such determination.

GC-42 Source of Materials

The Contractor shall be completely responsible for locating, identifying, and furnishing all materials required to be furnished under this Contract, except for BATA furnished materials specified in **Section 6.0 Special Conditions**. BATA shall perform or cause to be performed all tests required to demonstrate to BATA's satisfaction that the proposed materials satisfy the requirements of the Contract.

GC-43 Submittal of Shop Drawings, Product Data and Samples

Working and shop drawings may consist of drawings, diagrams, schedules, or other data prepared by Contractor, or any subcontractor of any tier, manufacturer, supplier or distributor, as are necessary to adequately control the Work or to illustrate or detail some portion of the Work. No change shall be made by Contractor in any working or shop drawing after it has been approved by BATA.

Working Drawings for any part of the permanent Work shall include, but not be limited to: stress sheets, anchor bolt layouts, shop details, erection plans, equipment lists and any other information specifically required elsewhere in the Contract.

Working drawings for cribs, cofferdams, falsework, temporary support systems, haul bridges, centering and form work and for other temporary work and methods of construction Contractor proposes to use, shall be submitted when required by the Contract or ordered by BATA.

Product data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, or other information furnished by Contractor to illustrate materials, products, systems, or equipment for some portion of the Work.

Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work shall be judged.

Working drawings and shop drawings, product data, samples, and similar submittals shall not modify any Contract requirement, except as expressly allowed by this Contract. The purpose of

their submittal is to demonstrate, for those portions of the Work for which submittals are required, the way Contractor proposes to comply with Contract requirements.

Contractor shall review, approve, and submit to BATA all working and shop drawings, product data, samples, or similar submittals required by this Contract, or that are necessary for its proper completion, in accordance with the Schedule for Technical Submittals shown in **Section 6.0, SC-51** and **Section 10.0, Construction Details**, in a sequence that causes no delay in the Work, or in the work of BATA or any other BATA contractor.

By approving and submitting working and shop drawings, alternative construction methods, product data, samples, or similar submittals, Contractor represents that it has determined and verified all related materials, measurements, and construction criteria, and that it has checked and coordinated the information contained within its submittals with the requirements of the Work and this Contract.

Contractor shall not be relieved of responsibility for any deviation from the requirements of this Contract by BATA's approval of shop and working drawings, product data, samples, plans, programs, schedules, or similar submittals unless Contractor has specifically informed BATA at the time of submittal in writing of the deviation and BATA has given written approval of the specific deviation. Contractor shall not be relieved of responsibility for errors or omissions in working and shop drawings, product data, samples, plans, programs, schedules or similar submittals by BATA's approval of the submittal. Contractor shall not deviate from approved working and shop drawings, product data, samples, or similar submittals without BATA's written approval.

Contractor shall not commence any portion of the Work requiring submission of shop or working drawings, product data, samples, or similar submittals until the required submittal has been approved by BATA.

Contractor shall direct specific attention, in writing or on resubmitted shop and working drawings, product data, samples, or similar submittals, to revisions other than those required by BATA on previous submittals.

Specific requirements for the submittal of shop and working drawings, product data and samples are contained in **Section 6.0, SC-6**, and **Section 7.0, GC-43**.

Full compensation for furnishing all working and shop drawings, product data and samples shall be considered as included in the prices paid for the Contract items of Work to which such drawings relate and no additional compensation will be allowed.

GC-44 Not Used

GC-45 Protection and Restoration of Property

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In addition to any other requirements imposed by law, Contractor shall shore up, brace, underpin, and protect as may be necessary, all foundations and other parts of all existing structures adjacent to and adjoining the site of the Work which are in any way affected by Contractor's operations. Whenever any notice is required to be given by BATA or Contractor to any adjoining or adjacent landowner or other party before beginning any Work under this Contract, such notice shall be given by Contractor.

Any damage arising from or in consequence of the performance of the Contract, to improvements or property, whether above or below ground, private or public, within or adjacent to the project limits, shall be repaired at once by Contractor. If the best interests of BATA require such repair to be made prior to the execution of any part of the Work included in this Contract, BATA will so notify Contractor who shall delay or discontinue the performance of that part of the Work until the necessary repair has been made. Such delay shall not be considered unavoidable, and no extension of time for completion of the Contract will be made.

When ordered by BATA to make any such repair, Contractor shall start work thereon within four hours and shall prosecute the same with diligence to completion. Upon failure of Contractor to so comply with such order, or upon Contractor's failure to make immediate emergency repairs which are necessary in the best interests of BATA or of the Public, BATA shall have the authority to cause such repair to be made and to deduct the costs thereof from any money due, or which may become due Contractor.

In any emergency affecting the safety of life or property including adjoining property, Contractor, without special instructions or authorization from BATA, is authorized to act at Contractor's discretion to prevent such threatened loss or injury, and Contractor shall so act whether or not it is instructed to do so by BATA.

GC-46 Utility Paint Markings

Contractor shall completely remove all utility paint markings at project completion. Removal shall be by use of the high water pressure method only. Payment for removal of all utility paint markings shall be considered as included in the price paid for other items of work and no additional compensation will be allowed therefor.

GC-47 Not Used

GC-48 Inspection

BATA shall at all times have access to the Work and shall be furnished every reasonable facility for verifying that the materials and workmanship conform to the requirements of the Contract. BATA may test and inspect, either at Contractor's, subcontractor's or supplier's facility, all components, subsystems or workmanship prior to assembly of such components into the Work and prior to acceptance of the Work by BATA. Following such testing and inspection, BATA will issue a deficiency list to Contractor listing those items that fail to comply with the Contract. BATA may either reject or require correction of defective material, workmanship, or nonconformity to this Contract. Contractor shall, at its own expense, make available tools, pits,

hoists, scaffolds, platforms, other equipment, facilities, drawings, and assistance as may be necessary for inspections or tests.

Costs of the Inspectors shall be borne by BATA and shall not be a part of the Contract Price. Costs of re-inspection shall be back charged to Contractor. The performance of, or the failure to perform, such inspection shall not relieve Contractor of any responsibility for complete Contract performance. Where shop inspection is required by the terms of the Contract, Contractor shall not ship materials until BATA releases such materials for shipment.

GC-49 Certificates of Compliance and Testing

49.1 General BATA shall use certain methods for testing the quality of materials and work. These methods are identified by number and are referred to in the specifications as California Test. Copies of individual California Tests are available and will be furnished to interested persons upon request.

Whenever the specifications require compliance with specified values for the following properties, tests will be made by the California Test indicated unless otherwise specified:

<u>Properties</u>	<u>California Test</u>
Relative Compaction.....	216 or 231
Sand Equivalent	217
Resistance (R-value)	301
Grading (Sieve Analysis).....	202
Durability Index	229

Whenever a reference is made in the specifications to a California Test by number, it shall mean the California Test in effect on the day the Notice of Award for the work is dated.

Whenever the specifications provide an option between two (2) or more tests, BATA will determine the test to be used.

Whenever a reference is made in the specifications to a specification, manual, or test designation either of the American Society of Testing and Materials, the American Association of State Highway and Transportation Officials, Federal Specifications, or any other recognized national organization, and the number or other identification representing the year of adoption or latest revision is omitted, it shall mean the specification, manual, or test designation in effect on the day the Notice to Bidders is dated. Whenever said specification manual or test designation provides for test reports (such as certified mill test reports) from the manufacturer, copies of such reports, identified as to the lot of material, shall be furnished to BATA. When material that cannot be identified with specific test reports is proposed for use, BATA may, at its discretion, select random samples from the lot for testing. Test specimens from the random samples, including those required for retest, shall be prepared in accordance with the referenced specification and furnished by Contractor

at their own expense. The number of such samples and test specimens shall be entirely at the discretion of BATA.

When requested by BATA, Contractor shall furnish, without charge, samples of all materials entering into the work, and no material shall be used prior to approval by BATA, except as provided in **GC-49 Certificates of Compliance and Testing**. Samples of material from local sources shall be taken by or in the presence of BATA, otherwise the samples will not be considered for testing.”

49.2 Certificates of Compliance When so authorized in the Contract or when permitted by BATA, the use of certain materials or assemblies shall be allowed if accompanied by a Certificate of Compliance. BATA reserves the right to refuse to permit the use of material on the basis of a Certificate of Compliance. If such use is permitted, the form of the Certificate of Compliance and its disposition shall be as directed by BATA. The certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall be furnished with each lot of material delivered to the Work and the lot so certified must be clearly identified in the Certificate.

All materials used on the basis of a Certificate of Compliance may be sampled and tested by BATA at any time. The fact that material is used on the basis of a Certificate of Compliance shall not relieve Contractor of responsibility for incorporating material in the Work which conforms to the requirements of the Contract and any such material not conforming to such requirements will be subject to rejection whether in place or not.

49.3 Testing - Unless otherwise specified, BATA shall perform or cause to be performed all testing of materials and work in accordance with the tests specified in **Section 10.0, Construction Details** and the Standard Specifications. Contractor shall furnish without cost adequate samples of all materials necessary for testing, and shall also designate the source of such material where appropriate. Costs of the first test will be paid by BATA. If the material fails the first test, all subsequent tests until the material passes shall be paid by Contractor and such costs will be deducted from any moneys due or to become due Contractor.

GC-50 Removal of Rejected or Unauthorized Work

All work that has been rejected shall be remedied, or removed and replaced by Contractor in a manner acceptable to BATA, and no compensation will be made for such removal, replacement or remedial work.

Any work performed outside of the limits of Work shown on the drawings or established by BATA, or any extra work done without written authorization of BATA will not be paid for. Upon order of BATA such unauthorized work shall be remedied, removed or replaced at Contractor's expense.

If Contractor fails to comply promptly with any such order of BATA, BATA may cause the rejected or unauthorized work to be removed, replaced, or remedied, and to deduct the costs thereof from any moneys due to Contractor.

GC-51 Disposal of Materials

Except for materials generated pursuant to **GC-9, Hazardous Materials or Unusual Conditions**, Contractor shall be responsible for the disposal of all excess materials generated during the performance of this Contract. When any material is to be disposed of outside the project area, other than a public dump, Contractor shall first obtain a written permit from the property owner on whose property the disposal is to be made and he shall file with BATA said permit or a certified copy thereof together with a written release from the property owner absolving BATA from any and all responsibility in connection with the disposal of material and said property, and before any material is disposed of on said property, Contractor shall obtain written permission from BATA to dispose of the material at the location designated in said permit.

GC-52 Protection of Completed Portions of Work

Contractor shall protect completed portions of the Work until final acceptance of the Work by BATA. Contractor shall take prompt action to remedy or repair any and all damage sustained to Work that is partially or wholly complete and has not yet been accepted by BATA.

GC-53 Cleanup

In addition to any requirements which may be included in **Section 10**, Contractor shall at all times during performance of Work under this Contract, keep the site clean from all rubbish and debris. Before final inspection of the Work, Contractor shall clean the material sites and all ground occupied by it in connection with the Work of all rubbish, excess materials, falsework, forms, temporary structures, and equipment. All parts of the Work shall be left in a neat and presentable condition.

GC-54 Redlined Construction Drawings

Drawings showing all approved changes made during construction which differ from the approved drawing set for construction, shall be furnished by Contractor prior to the acceptance of the Work. Final construction drawings submitted to BATA shall be in the form of redlined drawings clearly and neatly indicating all changes made with the approval of BATA and other field changes made which reflect the as-built condition of the Contract. During the construction period, redlined construction drawings shall be maintained by Contractor and made available to BATA for review on a daily basis.

GC-55 Final Inspection and Acceptance of All or a Portion of the Work

55.1 Final Inspection and Acceptance of all the Work When Contractor considers that all of the Work, or any discrete portion of the Work covered under this Contract has reached

final completion, Contractor shall so inform BATA in writing. If necessary and required, acceptance tests on the Work or discrete portion thereof will be performed as set forth in **Section 10.0 – Construction Details** and the Standard Specifications. BATA will prepare a punch list covering any part of the Work that fails to pass the acceptance tests or is otherwise unacceptable and will reject such work. Contractor shall proceed immediately to correct or replace unsatisfactory, incomplete or unacceptable work. For items of work not completed by Contractor BATA may proceed to have the items corrected or completed using BATA or third party forces. The costs of such corrections shall be deducted from compensation due Contractor.

Unless otherwise stipulated, title to such rejected work and risk of loss shall remain with Contractor, and Contractor shall have the responsibility and bear all costs to correct all defects or damage. All acceptance testing of Work which has been rejected previously shall be at Contractor's expense and costs incurred by BATA to perform such re-tests shall be deducted and withheld by BATA from payments otherwise due to Contractor.

Final acceptance of all of the Work or the particular discrete portion deemed complete will occur after successful completion of all testing, corrections of deficiencies, punch list items, and BATA's determination that the Work conforms in all respects to all the Contract requirements. BATA shall inform Contractor of such acceptance of the Work by issuing a final certificate stating that the Work has been completed in accordance with the Contract requirements and is accepted under the terms and conditions thereof. Acceptance of the Work will be made by BATA only upon issuance of said certificate together with a final estimate. After BATA has accepted the Work, Contractor will be relieved of the duty of maintaining and protecting the accepted Work and will not be required to perform any further work thereon; and Contractor shall be relieved of its responsibility for injury to persons or property or damage to the work that occurs after formal acceptance by BATA. Such final acceptance of the Work shall not relieve Contractor from responsibility for errors, improper fabrication, non-conformance to a Contract requirement, latent defects, or for deficiencies within Contractor's control. Unless otherwise stipulated, all warranties begin with the date of such final acceptance. Coincident with such final acceptance, BATA will record a Notice of Completion.

55.2 Final Inspection and Acceptance of a Portion of The Work BATA retains the right to direct Contractor to complete a portion of the Work at a time different than that specified in the Contract or reflected in the currently approved progress schedule. Such direction will be in writing. If such direction modifies the amount of compensation or time required for the completion of the Work, a change order will be issued. The following will apply if BATA accepts, pays for, takes title to and occupies the portion of the Work so accepted:

- Contractor will be relieved of maintenance responsibility for that portion of the Work.
- Contractor's warranty on that portion of the Work will commence.

7.5 COMPENSATION, PAYMENTS, RECORDS AND AUDIT

GC-56 Compensation

Contractor shall accept the compensation set out in the Contract as full payment for:

- furnishing all labor, materials, tools, equipment, and incidentals necessary to properly perform and satisfactorily complete all the Work included under this Contract;
- all loss or damage arising from the nature of the Work, or from the action of the elements, or from any unforeseen difficulties which may be encountered during the prosecution of the Work until final acceptance by BATA;
- all risks of every description connected with the prosecution of the Work, and for all expenses incurred in consequence of the suspension or discontinuance of the Work as provided in the Contract.

Neither the payment of any progress payment nor any retained percentage shall relieve Contractor of any obligation to make good any defective work or material.

No compensation will be made in any case for the loss of anticipated profits.

GC-57 Increased or Decreased Quantities and Quantity Variation

GC-57.1 Increased or Decreased Quantities. For Items paid for on a unit price basis, increases or decreases in the quantity of an item of the Work will be determined by comparing the actual quantity of such item of the Work with the Quantity for that item of the Work in the Schedule of Quantities and Prices.

GC-57.2 Quantity Variation If the actual quantity of any item of the Work paid for on a unit price basis varies from the Quantity for such item in the Schedule of Quantities and Prices by 25 percent or less, payment for the item of the Work will be made at the contract unit price..

If the actual quantity of such a contract item of the Work exceeds the Quantity for such item in the Schedule of Quantities and Prices by more than 25 percent, the compensation payable to the Contractor for the amount in excess of 125 percent of the Quantity will be reviewed by the Contractor and BATA, and an equitable adjustment may be made to the unit price for such excess amount by means of a Change Order to credit BATA with any reduction in cost or to compensate Contractor for any increase in cost resulting from the change in quantity. This review of the adjustment will be made at a time mutually acceptable to BATA and the Contractor. If the review results in no change in unit price, the record shall so state.

If the actual quantity of such a contract item of the Work is less than 75 percent of the Quantity for such item in the Schedule of Quantities and Prices, the compensation payable to the Contractor will be reviewed by the Contractor and BATA, and an equitable adjustment

may be made to the unit price for the entire quantity by means of a Change Order to credit BATA with any reduction in cost or to compensate the Contractor for any increase in cost resulting from the change in quantity. This review of the adjustment will be made at a time mutually acceptable to BATA and the Contractor. If the review results in no change in unit price, the record shall so state.

GC-58 Certified Payrolls

Contractor shall submit weekly for each week in which any Contract Work is performed, a certified copy of all payrolls for its employees and a certified copy of all of its subcontractor's payrolls, to BATA. The payrolls submitted shall conform to the requirements of 29 CFR Sec. 5.5 (a) (3) (i) and shall be in a form acceptable to BATA.

GC-59 Invoicing and Progress Payments

Contractor will be paid for the value of all accepted quantities for the various items of work satisfactorily completed in accordance with the Contract and computed in accordance with the applicable measurement for payment provisions of the Contract. Before any payment becomes due, Contractor shall prepare for BATA's approval a schedule of values of the main categories of the Work included in any items paid for as a lump sum and any items for which partial payment for materials on hand will be made. Each item in the schedule of values shall include its proper share of overhead and profit. The values in the schedule shall be used only for determining the amount of each progress payment. A proposed schedule may be rejected if any item is determined by BATA to be unbalanced. BATA may request a detailed cost breakdown of such items.

Prior to the end of each payment period, Contractor shall prepare and forward to BATA a progress payment invoice in writing consisting of the value of the total amount of Work done plus the value of the acceptable materials on hand. Acceptable materials on hand consist of materials or equipment furnished and delivered by Contractor to the site but not yet incorporated in the Work and properly stored in a location acceptable to BATA. In order for materials on hand to be considered for payment, Contractor shall request payment for them on BATA-furnished forms accompanied by documentation as therein required including, but not limited to, evidence of purchase if appropriate.

BATA will retain **ten percent** of such invoiced value as part security for the fulfillment of the Contract by Contractor, and shall pay to Contractor the balance not retained, after deducting therefrom all previous payments and all sums to be kept or retained under the provisions of the Contract. No such invoice or payment shall be construed to be an acceptance of any defective work or improper materials.

After 50% of the Contract Amount, as modified by any Change Orders, has been earned, and if satisfactory progress has been made in accordance with the approved Contract progress schedule, BATA will make the remaining progress payments in full, without retention. If, however, Contractor subsequently falls behind the approved Contract progress schedule, BATA may

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resume retention up to **ten percent** of all progress payments, including those payments that were made in full.

In accordance with the provisions of applicable California law, Contractor may be permitted to substitute securities in lieu of the withholding from progress payments specified above. Substitutions shall be done in accordance with California Public Contract Code Section 22300 (see below).

Work completed in place shall be an estimate only, and no inaccuracy or error in said estimates shall operate to release Contractor or any Surety from damages arising from such Work or from enforcing each and every provision of this Contract, and BATA shall have the right to subsequently correct any error made in any invoice submitted for payment. No such invoice or payment shall be required to be made when, as determined by BATA, the Work is not proceeding in accordance with the provisions of the Contract, or when the total value of the Work done since the last estimate amounts to less than \$500.00.

In addition to the amounts that BATA may retain as provided hereinabove, BATA may withhold additional amounts from any payments otherwise due to Contractor as it determines necessary to cover:

- a) Payments which may be past due and payable for just claims against Contractor or any Subcontractor for labor or materials furnished in performance of the Work under the Contract;
- b) For defective work not remedied;
- c) For failure of Contractor to make proper payments to any of its Subcontractors;
- d) A reasonable doubt that Contractor will complete the Work within the Contract time limits;
- e) Damage to other work or property caused by Contractor or its Subcontractor of any tier; if applicable;
- f) An amount, not less than 10 percent of the total progress payment, due to the failure to abate, within one (1) working day or immediately in cases of imminent danger, infractions of BATA's Injury Prevention Program (BATA/IPP), Contractor's Safety Plan, CAL/OSHA, FEDERAL OSHA, ANSI or other applicable safety standards;
- g) An amount not to exceed 20 percent of the total progress payment, due to four or more repeated infractions in a single payment period of BATA/IPP, Contractor's Safety Plan CAL/OSHA, FEDERAL OSHA, ANSI and all other applicable safety standards.

Contractor shall not be entitled to have any payment estimates processed or be entitled to have any payment made for work performed so long as any lawful or proper direction concerning the Work or any portion thereof given by BATA remains uncomplied with.

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Whenever BATA, in accordance herewith, withholds any moneys otherwise due Contractor, written notice of the amount withheld and the reasons therefor shall be given Contractor, and when Contractor removes the grounds for such withholding, BATA will pay Contractor the amount so withheld.

Progress payments shall be based on a four-week period as mutually agreed to by BATA.

Securities may be substituted in lieu of the withholding of progress payments in accordance with Public Contract Code § 22300, which states:

§ 22300 Substitution of Securities for Retentions; Escrow Account

(a) Provisions shall be included in any invitation for bid and in any contract documents to permit the substitution of securities for any moneys withheld by a public agency to ensure performance under a contract, however, substitution of securities provisions shall not be required in contracts in which there will be financing provided by the Farmers Home Administration of the United States Department of Agriculture pursuant to the Consolidated Farm and Rural Development Act (7 U.S.C. § 1921 et. seq.), and where federal regulations or policies, or both, do not allow the substitution of securities. At the request and expense of Contractor, securities equivalent to the amount withheld shall be deposited with the public agency, or with a state or federally chartered bank in this state as the escrow agent, who shall then pay those moneys to the Contractor. Upon satisfactory completion of the contract, the securities shall be returned to Contractor.

(b) Alternatively, Contractor may request and the Owner shall make payment of retentions earned directly to the escrow agent at the expense of Contractor. At the expense of Contractor, Contractor may direct the investment of the payments into securities and Contractor shall receive the interest earned on the investments upon the same terms provided for in this section for securities deposited by Contractor. Upon satisfactory completion of the contract, Contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the owner, pursuant to the terms of this section.

(c) Securities eligible for investment under this section shall include those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by Contractor and the public agency.

Contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon.

Failure to include these provisions in bid and contract documents shall void any provisions for performance retentions in a public agency contract.

For purposes of this section, the term “public agency” shall include, but shall not be limited to, chartered cities.

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(d)(1) Any contractor who elects to receive interest on moneys withheld in retention by a public agency shall, at the request of any subcontractor, make that option available to the subcontractor regarding any moneys withheld in retention by the contractor from the subcontractor. If the contractor elects to receive the identical rate of interest received by the contractor on any retention moneys withheld from the subcontractor by the contractor, less any actual pro rata costs associated with administering and calculating that interest. In the event that the interest rate is a fluctuating rate, the rate for the subcontractor shall be determined by calculating the interest rate paid during the time that retentions were withheld from the subcontractor. If the contractor elects to substitute securities in lieu of retention, then, by mutual consent of the contractor and subcontractor, the subcontractor may substitute securities in exchange for the release of moneys held in retention by the contractor.

(2) This subdivision shall apply only to those subcontractors performing more than five percent of the contractor's total bid.

(3) No contractor shall require any subcontractor to waive any provision of this section.

(e) The Legislature hereby declares that the provisions of this section are of statewide concern and are necessary to encourage full participation by contractors and subcontractors in public contract procedures.

(f) The escrow agreement used hereunder shall be null, void, and unenforceable unless it is substantially similar to the following form:

ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

This Escrow Agreement is made and entered into by and between

_____ whose address is _____
hereinafter called "Owner,"

_____ whose address is _____
hereinafter called "Contractor" and _____, a state or federally chartered
bank, whose address is _____ hereinafter called "Escrow Agent."

For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:

(1) Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to the Construction Contract entered into between the owner and Contractor for _____ in the amount of _____ dated _____ (hereinafter referred to as the "Contract"). Alternatively, on written request of Contractor, the owner shall make payments of the retention earnings directly to the Escrow Agent. When Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify the Owner within 10 days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the owner and Contractor.

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Securities shall be held in the name of _____, and shall designate Contractor as the beneficial owner.

(2) The Owner shall make progress payments to Contractor for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

(3) When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time that the escrow created under this contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.

(4) Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor, and Escrow Agent.

(5) The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.

(6) Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from the Owner to the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.

(7) The Owner shall have a right to draw upon the securities in the event of default by Contractor. Upon seven days' written notice to the Escrow Agent from the owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the Owner.

(8) Upon receipt of written notification from the owner certifying that the Contract is final and complete, and that Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

(9) Escrow Agent shall rely on the written notifications from the owner and Contractor pursuant to Sections (5) to (8), inclusive, of this agreement and the owner and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

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(10) The names of the persons who are authorized to give written notice or to receive written notice on behalf of the owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of Owner:

_____(Title)
_____(Name)
_____(Signature)
_____(Address)

On behalf of Contractor:

_____(Title)
_____(Name)
_____(Signature)
_____(Address)

On behalf of Escrow Agent:

_____(Title)
_____(Name)
_____(Signature)
_____(Address)

(11) Securities eligible for deposit by Contractor or investment hereunder shall be _____ and no others.

At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

_____(Owner)
_____(Title)
_____(Name)
_____(Signature)

_____(Contractor)
_____(Title)
_____(Name)
_____(Signature)

GC-60 Force Account Payment

If work is directed by BATA to be performed on a force account basis, compensation shall be made as set forth in this provision. Such payment shall constitute full compensation to Contractor for work directed to be performed on force account and no additional compensation

will be allowed therefor. Labor, materials and equipment used in the performance of work on a force account basis shall be approved daily by BATA.

60.1 Work Performed by Contractor. Contractor will be paid the direct costs for labor, materials and equipment used in performing the Work as hereinafter provided except where agreement has been reached to pay in accordance with the **GC-60.7**. A markup may be added to the total of the direct costs computed as provided in **GC-60.2, 60.3, 60.4**. The added markup shall not exceed 20 percent of the cost of labor, 15 percent of the cost of material, 15 percent of the equipment rental and 5 percent of the cost of subcontractors.

The above markups shall constitute full compensation for all overhead costs (general overhead, supervision, office expenses, field office facilities, utilities, and transportation) that shall be deemed to include all items of expense not specifically designated as cost or equipment rental in accordance with the subsections entitled "**Labor,**" "**Materials,**" and "**Equipment Rental.**"

When work paid for on a force account basis is performed by forces other than Contractor's organization, Contractor shall reach agreement with such other forces as to the distribution of the payment made by BATA for such work. No additional payment therefor will be made by BATA by reason of the performance of the Work by a subcontractor or other forces.

60.2 Labor Contractor will be paid the cost of labor for the workmen (including foremen when authorized by BATA) used in the actual and direct performance of the Work. The cost of labor, whether the employer is Contractor, subcontractor, or other forces, will be the sum of the following:

- a) **Actual Wages** The actual wages paid shall include any employer payments to or on behalf of the workmen for health and welfare, pension, vacation, insurance, overtime, plus other additives in accordance with collective bargaining agreements.
- b) **Labor Surcharge** To the actual wages, as defined above, will be added a Labor Surcharge as set forth in the State of California Department of Transportation publication entitled *Labor Surcharge & Equipment Rental Rates*, which was in effect on the date upon which the Work was accomplished. Said labor surcharge shall constitute full compensation for all payments imposed by State and Federal laws and for all other payments made to, or on behalf of, the workmen, other than actual wages as defined above and the actual subsistence and travel allowance. Provided, however that any costs for workers compensation insurance provided by BATA shall be deducted from the above Labor Surcharge total.

60.3 Materials BATA reserves the right to furnish such materials as it deems advisable, and Contractor shall have no claims for costs and markup on such materials. Only materials furnished by Contractor and necessarily used in the performance of the Work will be paid for. The cost of such materials will be the cost to the purchaser, whether Contractor,

subcontractor or other forces, from the supplier thereof, except as the following are applicable:

- If a cash or trade discount by the actual supplier is offered or available to the purchaser, it shall be credited to BATA notwithstanding the fact that such discount may not have been taken.
- If materials are procured by the purchaser by any method which is not a direct purchase from and a direct billing by the actual supplier to such purchaser, the cost of such materials shall be deemed to be the price paid to the actual supplier as determined by BATA. No markup except for actual costs incurred in the handling of such materials will be permitted.
- If the materials are obtained from a supply or source owned wholly or in part by the purchaser, payment therefor will not exceed the price paid by the purchaser for similar materials furnished from said source on contract items or the current wholesale price for such materials delivered to the jobsite, whichever price is lower.
- If the cost of such materials is, in the opinion of BATA, excessive, then the cost of such material shall be deemed to be the lowest current wholesale price at which such materials are available in quantities concerned delivered to the jobsite, less any discounts as provided above.

60.4 Equipment Rental Compensation for equipment used on force account work shall be determined from the latest schedule of equipment rental rates listed in the State of California, Department of Transportation, Business and Transportation Agency Publication, "*Labor Surcharge & Equipment Rental Rates*," and in use at the time the equipment is used. The equipment rental rates listed in said publication shall be used regardless of ownership and any rental or other agreement, if such may exist for the use of such equipment entered into by Contractor. If it is deemed necessary by BATA to use equipment not listed in the said publication, a suitable rental rate for such equipment will be established by BATA prior to the work being done. Contractor shall furnish any cost data that might assist BATA in the establishment of such rental rate.

The rental rate paid as above provided shall include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance and all incidentals.

Operators of rental equipment will be paid for as provided in the Subsection entitled "**Labor.**"

All equipment shall, in the opinion of BATA, be in good working condition and suitable for the purpose for which the equipment is to be used.

Unless otherwise specified, manufacturer's ratings and manufacturer-approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment that has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer.

Individual pieces of equipment or tools having a replacement value of \$250 or less, whether or not consumed by use, shall be considered to be small tools and no payment will be made therefor.

Rental time will not be allowed while equipment is inoperative due to breakdowns.

60.5 Equipment at the Site of the work The rental time to be paid for equipment on the Work shall be the time the equipment is in operation on the Work being performed, and in addition, shall include the time required to move the equipment to the location of the Work and return it to the original location or to another location requiring no more time than that required to return it to its original location, except that moving time will not be paid for if the equipment is used at the site of the Work on other than such work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power, except that no payment will be made if the equipment is used at the site of the Work on other than such Work. The following shall be used in computing the rental time of equipment on the Work:

- When hourly rates are listed, less than thirty (30) minutes of operation shall be considered to be one-half hour of operation.
- When daily rates are listed, less than four (4) hours of operation shall be considered to be one-half day of operation.

60.6 Equipment Not at the Site of the Work For the use of equipment moved onto the site of the Work and used exclusively for work paid for on a force account basis Contractor will be paid the rental rates as determined in the Subsection entitled "**Equipment Rental**" and for the cost of transporting the equipment to the location of the Work and its return to its original location, all in accordance with the following provisions:

- The original location of the equipment to be hauled to the location of the Work shall be agreed to by BATA in advance.
- BATA will pay the cost of loading and unloading such equipment.
- The cost of transporting equipment in low bed trailers shall not exceed the hourly rates listed in the State of California Department of Transportation publication entitled *Labor Surcharge & Equipment Rental Rates*.
- The cost of transporting equipment shall not exceed the applicable minimum established rates of the Public Utilities Commission.

The rental period shall begin at the time the equipment is unloaded at the site of the Work, shall include each day that the equipment is at the site of the Work, excluding Saturdays, Sundays, and BATA holidays unless the equipment is used to perform the Work on such

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days, and shall terminate at the end of the day on which BATA directs Contractor to discontinue the use of such equipment. The rental time to be paid per day will be in accordance with the following:

<u>Hours of Operation</u>	<u>Hours to Be Paid</u>
0	4
0.5	4.25
1	4.5
1.5	4.75
2	5
2.5	5.25
3	5.5
3.5	5.75
4	6
4.5	6.25
5	6.5
5.5	6.75
6	7
6.5	7.25
7	7.5
7.5	7.75
8	8
Over 8	Actual hours in operation

The hours to be paid for equipment that is operated less than eight (8) hours due to breakdowns shall not exceed eight (8) less the number of hours the equipment is inoperative due to breakdowns.

When hourly rates are listed, less than thirty (30) minutes of operation shall be considered to be one-half hour of operation. When daily rates are listed, payment for one-half day will be made if the equipment is not used. If the equipment is used, payment will be made for one day. The minimum rental time to be paid for the entire rental period on an hourly basis shall not be less than eight (8) hours or if on a daily basis shall not be less than one day.

Should Contractor desire the return of the equipment to a location other than its original location, BATA will pay the cost of transportation in accordance with the above provisions, provided such payment shall not exceed the cost of moving the equipment to the Work.

Payment for transporting, and loading and unloading equipment, as provided above, will not be made if the equipment is used on the Work in any other way than upon Work paid for on a force account basis.

When work, other than work specifically designated as Work in the Contract Documents, is to be paid for on a force account basis and BATA determines that such work requires Contractor to move on to the site equipment which could not reasonable have been expected to be needed in the performance of the Contract, payment for the use of such equipment at equipment rental rates in excess of those listed as applicable for the use of such equipment will be made subject to the following additional conditions:

- BATA shall specifically approve the necessity for the use of particular equipment on such Work.
- Contractor shall establish to the satisfaction of BATA that such equipment cannot be obtained from its normal equipment source or sources and those of its subcontractors.
- Contractor shall establish to the satisfaction of BATA that the proposed equipment rental rate for such equipment from its proposed source is reasonable and appropriate for the expected period of use.
- BATA shall approve the equipment source and the equipment rental rate to be paid by BATA before Contractor begins work involving the use of said equipment.

60.7 Work Performed by Special Forces or Other Special Services When BATA and Contractor, by mutual agreement, determine that a special service or an item or work cannot be performed by the forces of Contractor, or those of any of its subcontractors, such service or work item may be performed by a specialist. Invoices for such service or item of work, performed by a specialist on the basis of the current market price thereof, may be accepted without complete itemization of labor, material, and equipment rental costs when it is impracticable and not in accordance with the established practice of the special service industry to provide such complete itemization.

In those instances wherein a Contractor is required to perform work necessitating a fabrication or machining process in a fabrication or machine shop facility away from the jobsite, the charges for that portion of the Work performed in such a facility, may by mutual agreement, be accepted as a specialist billing.

In lieu of the percent markups provided above in the Subsection entitled "**Work Performed by Contractor**", a 15 percent markup will be added to the specialist price, less a credit to BATA for any cash or trade discount offered or available, whether or not such discount may have been taken.

60.8 Owner-Operated Equipment. When "Owner-Operated Equipment" is used to perform work to be paid on a force account basis, Contractor will be paid for the equipment and operator, as follows:

- Payment for the Equipment will be made in accordance with the Subsection 60.4 herein entitled "**Equipment Rental**."

- Payment for the cost of labor and subsistence or travel allowance will be made at the rates paid by Contractor to other workmen operating similar equipment already on the project or, in the absence of such other workmen, at the rates for such labor established by collective bargaining agreements for the type of workmen and location of the Work, whether or not the "Owner-Operator" is actually covered by such an agreement. A labor surcharge will be added to the cost of labor described herein, in accordance with the provisions of Subsection 60.2 b entitled "**Labor Surcharge.**"
- To the direct cost of equipment rental and labor, computed as provided herein, will be added the markups for labor and equipment rental as provided in Subsection 60.1 entitled "**Work Performed by Contractor.**"

If, at any time after Contractor commences the force account work, a method of compensation other than that specified in this Article has been agreed upon for the force account work or a portion of such work, such compensation shall be made in accordance with such agreement.

Contractor shall keep accurate daily records of the actual cost to Contractor for all work performed pursuant to this Article and shall make them available to BATA upon reasonable notice and request. Such records shall be maintained in such a manner so as to be completely discernible from records associated with the basic Contract scope.

GC-61 Prompt Payment

61.1 Payment to Contractor Public Contract Code Section 20104.50 requiring prompt payment to contractors is applicable to this contract. Undisputed and properly submitted payment requests shall be paid within thirty (30) days of receipt by BATA. Any undisputed and properly submitted payment request not paid within thirty (30) days shall accrue interest at the legal rate set forth in Code of Civil Procedure Section 685.010.

Any payment request determined by BATA not to be a proper payment request suitable for payment shall be returned to Contractor within seven days of receipt setting forth in writing the reasons why the payment request is not proper.

61.2 Payment to Subcontractors Contractor shall adhere to all federal and California prompt payment laws and regulations including Business and Professions Code Section 7108.5 requiring Contractor to pay subcontractors within ten (10) days of receipt of each progress payment to the extent of each subcontractor's interest therein, unless otherwise agreed to in writing.

Notwithstanding the time for payment of retention provided for in Public Contract Code Section 7101(d), Contractor shall pay retention proceeds to subcontractors within thirty (30) days after the subcontractor's work is satisfactorily completed, unless the time for payment calculated pursuant to Section 7101(d) would result in earlier payment of retention to the subcontractor.

GC-62 Final Payment

Final payment shall not become due until the following actions have been satisfactorily completed:

- a) Satisfactory completion of final inspection of all the Work under the Contract and the issuance by BATA of a Letter of Final Acceptance.
- b) The recording of a Notice of Completion by BATA.
- c) Contractor submittal to BATA of:
 - An affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work have been paid or otherwise satisfied, and
 - A release of liens and claims arising out of the Contract, to the extent and in the form designated by BATA. If a claim remains unsatisfied after all payments are made, Contractor shall reimburse BATA for all monies that BATA may be compelled to pay in discharging the claim, including all costs and reasonable attorney's fees.

BATA may at its option and at any time retain out of any amounts due Contractor, sums sufficient to cover claims, filed pursuant to Section 3179 et seq. of the Civil Code.

BATA will make final payment, including outstanding retention, within **30-60 calendar days** of the recording of the Notice of Completion.

The acceptance of final payment by Contractor shall constitute a waiver of all claims against BATA arising under the Contract.

GC-63 Project Records

Comprehensive records and documentation relating to this project shall be kept by Contractor. The records shall include, but are not limited to Contract Documents, Drawings, Specifications, Addenda, Shop Drawings and Submittals, Change Orders, Modifications, Test Records, redlined construction plans, As-Built Drawings, and cost and pricing data. Contractor shall maintain a complete set of records relating to this Contract for a period of seven years from final payment for this Work. The cost records shall be complete and in sufficient detail to allow evaluation of the accuracy and completeness, and currency of the costs or prices. Contractor shall permit the authorized representatives of BATA to examine and audit all such records and any subcontracts under this Contract during the time period so specified. In addition, every contract involving the expenditure of public funds in excess of ten thousand dollars (\$10,000) entered into by a public entity in the State of California shall be subject to the examination and audit of the State Auditor, at the request of the public entity or as part of any audit of the public entity, for a period of three years after final payment under the contract.

7.6 CONTRACT MODIFICATIONS, DISPUTES AND CLAIMS
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GC-64 Not Used

GC-65 Change Requests and Change Notices

65.1 Change Requests. Contractor may make a written request to BATA to modify the Contract (Change Request) based upon the receipt of, or the discovery of information that changes the scope, price, schedule, level of performance, or other facet of the Contract.

Contractor shall deliver a document entitled **“Change Request”** to BATA within 30 calendar days after receipt of, or the discovery of, information (other than receipt of a **“Change Notice”**) that Contractor believes will cause a change to the scope, price, schedule, level of performance, or other facet of the Contract. Upon receipt of a Change Notice, Contractor shall follow the procedures of **GC-65.2**. All Change Requests, and any Claims based thereon including any request or claim for cumulative impact costs shall be deemed waived unless a Change Request is delivered to BATA within the 30 calendar days specified herein.

The Change Request shall include information necessary to substantiate the effect of the change and any impacts to the work, including any change in schedule or Contract Price, and shall include all existing documentation or a description of anticipated documentation. In addition, the Change Request shall contain a detailed description of the proposed adjustment to the Contract Price or currently approved progress schedule, or both, and shall reference any other provisions of the Contract that will require modification because of the change. If a Change Request proposes an adjustment in the Contract Price, upon request of BATA, Contractor shall submit a complete breakdown of costs including detailed pricing information and back up for all work and any impacts thereto contemplated by the change.

The unavailability of all information necessary to quantify the change shall not excuse the timely submission of the Change Request. Contractor shall supplement the Change Request with additional information or documentation, as it becomes available. If BATA has not received sufficient substantiating documentation or information within a reasonable time after receipt of the Change Request, such insufficiency may be grounds to deny the Change Request.

If a Change Request or portions thereof are acceptable to BATA, BATA will issue a Contract Change Order consistent therewith. If a Change Request or portions thereof are not acceptable to BATA, BATA shall notify the Contractor in writing.

Any request by Contractor to modify the contract must first be submitted to BATA and proceed as a Change Request pursuant to these provisions. The Contractor may submit the matter as a Claim pursuant to GC 68, Claims only if, i) the Change Request has been denied by BATA in whole or in part, or ii) the Change Request has not been resolved within 90 days after receipt by BATA.

In the event of a dispute, Contractor shall proceed with the Work without delay, as directed by BATA.

65.2 Change Notice. BATA may, at any time during performance of the Contract notify Contractor of changes to the Contract by issuing a **Change Notice** to that effect. Contractor shall, within 15 calendar days after receipt of such Change Notice, provide to BATA a written response identifying any proposed adjustment in Contract Price, including any adjustment for cumulative impact costs and schedule to perform the changes identified in the Change Notice, unless another time period for response is specified in the Change Notice. BATA shall then issue an appropriate Change Order.

If BATA directs Contractor to perform additional work, the basis for compensation for such work shall be either: 1) extension of Contract items, 2) negotiated lump sum price, or 3) force account, as determined by BATA. The markups described in **GC-60.1** shall be the maximum allowed for all additional work directed by BATA.

If the Contractor and BATA cannot agree on the appropriate adjustment to the Contract Price or schedule, Contractor may either accept BATA's determination or identify and submit the matter as a Claim pursuant to the provisions of **GC 68**, Claims. In the event of a dispute, Contractor shall proceed with the Work without delay as directed by BATA.

GC-66 Change Order

A Change Order is a written document issued by BATA, that:

- Changes the Contract Price, as modified by any previously executed Change Orders, or
- Alters the scope of Work under the Contract, or
- Alters the schedule for performance of the Work under the Contract as set forth in the currently approved schedule, or
- Makes any other change to the Contract, or makes a combination of any of the aforementioned Contract changes.

GC-67 Differing Site Conditions

67.1 Soil Boring or Other Data. Where BATA has included soil boring information or other data in the Contract, they are included for Contractor's information only and BATA does not guarantee the accuracy of the information contained therein.

67.2 Notice of Differing Conditions. Contractor shall promptly and before such conditions are disturbed, notify BATA in writing of subsurface or latent physical conditions at the site differing materially from those indicated in the Contract, or unknown physical conditions at the site, of any unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in this Contract.

All Change Requests involving differing site conditions and any Claims based thereon shall be deemed waived unless the Contractor has given written notice before the conditions are disturbed as specified herein.

BATA will, as soon as practicable, investigate or cause to be investigated the items noted by Contractor and, if it is determined that such conditions do materially so differ and cause an increase or decrease in Contractor's cost of or time required for the performance of any part of the Work under the Contract, whether or not changed as a result of such conditions, an equitable adjustment will be made and the Contract modified.

GC-68 Claims

68.1 Claim Defined "Claim" means a separate demand by Contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or that Contractor is not otherwise entitled to, or (C) an amount the payment of which is disputed by BATA.

68.2 Claim Requirements:

1. Any submittal intended by the Contractor to be evaluated by BATA as a Claim shall be entitled "Claim".
2. All claims shall be submitted by the Contractor within thirty (30) days after the date of the event giving rise to the Claim, such as, for example, the denial by BATA of a Change Request, the failure of BATA to respond to a Change Request within ninety (90) days after receipt of required substantiating information and documentation, or the issuance by BATA of a disputed Change Order. Any Claim not submitted within the specified thirty (30) days shall be deemed waived.
3. Claims shall be in writing and must be submitted with all documents necessary to substantiate the Claim. A Claim must state in as much detail as possible the basis for the Claim and the additional compensation or extra time to which Contractor believes it is entitled. If the Claim is silent regarding entitlement to extra time, Contractor shall be entitled to no extra time in connection with the Claim. If the Claim is silent regarding additional compensation, Contractor shall be entitled to no additional compensation in connection with the Claim.
4. Contractor must notify BATA promptly in writing of any changes in its estimates of additional compensation or extra time, and the notification must state the reasons for the changes.
5. All Claims and any amendments thereto shall include the fully executed certification set forth below. Any Claim submitted without a fully executed certification shall be rejected by BATA and returned to the Contractor.

Bay Area Toll Authority
SPECIAL PROVISIONS
TOLL PLAZA IMPROVEMENTS
Contract No. BATA-0006

I, _____, BEING THE _____ (MUST BE AN OFFICER) OF _____ (CONTRACTOR), DECLARE UNDER PENALTY OF PERJURY UNDER THE LAWS OF THE STATE OF CALIFORNIA, AND DO PERSONALLY CERTIFY AND ATTEST THAT I HAVE THOROUGHLY REVIEWED THE ATTACHED CLAIM FOR ADDITIONAL COMPENSATION AND/OR EXTENSION OF TIME, AND KNOW ITS CONTENTS, AND SAID CLAIM IS MADE IN GOOD FAITH; THE SUPPORTING DATA IS TRUTHFUL AND ACCURATE; THAT THE AMOUNT REQUESTED ACCURATELY REFLECTS THE CONTRACT ADJUSTMENT FOR WHICH THE CONTRACTOR BELIEVES THE OWNER IS LIABLE; AND, FURTHER, THAT I AM FAMILIAR WITH CALIFORNIA PENAL CODE SECTION 72 AND CALIFORNIA GOVERNMENT CODE 12650, *ET SEQ.*, PERTAINING TO FALSE CLAIMS, AND FURTHER KNOW AND UNDERSTAND THAT SUBMISSION OR CERTIFICATION OF A FALSE CLAIM MAY LEAD TO FINES, IMPRISONMENT, AND/OR OTHER SEVERE LEGAL CONSEQUENCES.

By _____

6. No Claims shall be filed later than the date of final payment.

68.3 Claim Review. BATA shall respond in writing to Contractor's Claim within forty-five (45) calendar days after BATA's receipt of the Claim or BATA may request in writing, within 30 days of receipt of the Claim, any additional information or documentation supporting the Claim or relating to defenses to the Claim BATA may have against the Contractor. For claims exceeding \$375,000 BATA may, at its option, notify Contractor of extended time periods for review and response.

BATA's written response to the Claim, as further documented, shall be submitted to Contractor within fifteen (15) days after receipt of the further information or documentation or within a period of time no greater than that taken by the Contractor in producing the additional information, whichever is greater.

68.4 Meet and Confer If Contractor disputes BATA's written response, or if BATA fails to respond within the time prescribed, Contractor may so notify BATA, in writing, either within fifteen (15) days of receipt of BATA's response or within fifteen (15) days of BATA's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, BATA shall schedule a meet and confer conference within thirty (30) days for settlement of the dispute.

Following the meet and confer conference, if the Claim or any portion remains in dispute, Contractor may file a Government Code claim as provided in Chapter 1 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a Government Code claim must be filed shall be tolled from the time Contractor submits its written Claim pursuant to the above provisions until the time the Claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

The above procedures do not apply to Government Code claims for tort damages and are not intended, and shall not be construed, to change the time for filing such claims.

68.5 Procedures for Civil Actions. Public Contract Code Section 20104.4, set forth below, establishes the following procedures for all civil actions filed to resolve claims of \$375,000 or less under this Contract:

- (a) Within 60 days, but no earlier than 30 days, following the filing of responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced within 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.*
- (b) (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986 (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.*
 - (2) Notwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or expenses be paid by state or county funds.*
 - (3) In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, any party who after receiving an arbitration award requests a trial de novo but does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, pay the attorney's fees of the other party arising out of the trial de novo.*
- (c) The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.*

The above claims procedures are also subject to Public Contract Code § 20104.6, which provides:

- (a) *No local agency shall fail to pay money as to any portion of a claim that is undisputed except as otherwise provided in the contract.*
- (b) *In any suit filed under Section 20104.4, the local agency shall pay interest at the legal rate on any arbitration award or judgment. The interest shall begin to accrue on the date the suit is filed in a court of law.*

7.7 SUSPENSION OF WORK, CONTRACT TERMINATION

GC-69 Suspension of the Work

In addition to the right of BATA to suspend Work under any other provision of this Contract, BATA may require Contractor to suspend all or part of the Work called for by this Contract at any time for up to **ninety (90) days** after a written Suspension Order is delivered to Contractor, and for any further period to which the parties may agree. The Suspension Order shall include the following:

- A clear description of the Work to be suspended;
- Guidance as to the action to be taken on subcontracts; and
- Other requests for minimizing costs.

Upon receipt of a Suspension Order, Contractor shall comply with its terms immediately and take all reasonable steps to minimize cost allocable to the Work covered by the Order during the period of work stoppage. Within the period specified by the Order, or within any extension of that period to which the parties may agree, BATA may:

- Terminate the Work covered by the Order as set forth in this section.
- Cancel the Suspension Order; or
- Allow the period of the Suspension Order to expire.

Contractor shall resume work upon the cancellation or expiration of a Suspension Order. An equitable adjustment shall be made in the Work scope, Contract Price, or Contract time, as appropriate, and the Contract shall be modified in writing in accordance with **GC-32, Excusable Delays and Extensions of Time** and **GC-69, Suspension of the Work** if:

- The Suspension Order results in an increase in the time required for, or in Contractor's cost properly allocable to, the performance of any part of this Contract; and
- Contractor asserts a claim for an adjustment within 30 days after the end of the period of work stoppage; and
- The Suspension Order was not caused by Contractor's default or other act or omission within the control or responsibility of Contractor.

In preparation for and during suspensions of work, Contractor shall take every reasonable precaution to prevent damage to or deterioration of the Work. Contractor shall repair or replace,

at no cost to BATA, Work that is damaged or deteriorated during a work suspension due to Contractor's failure to comply with this duty. If BATA determines that Contractor is not taking reasonable precautions and Contractor fails to take the corrective action within five days after written notice from BATA, BATA may cause such action to be taken and recover the reasonable cost thereof from Contractor.

GC-70 Termination for Convenience or in the Public Interest

BATA may terminate this Contract in whole or in part at any time by written notice to Contractor if BATA determines that termination is in the best interest of BATA or the public. If this Contract is so terminated, Contractor shall be entitled to payment for all Work performed acceptably, all acceptable goods or services ordered by and delivered to Contractor before termination, and all reasonable termination costs, up to the maximum amount payable under this Contract, provided that Contractor provides a final itemized invoice for the above amounts within thirty (30) days after receiving the termination notice.

GC-71 Termination for Default

BATA may, by written notice of default to Contractor, terminate Contractor's right to proceed with the Work under the Contract, in whole or with regard to any part:

- if Contractor fails to supply an adequate working force, or materials of proper quality, or otherwise refuses or fails to prosecute the Work, or any separable part thereof, with such diligence as will ensure its completion within the time specified in this Contract, or authorized extension thereof; or
- if Contractor fails to make prompt payment to its subcontractors or suppliers upon receipt of progress payments from BATA; or
- if Contractor persistently disregards laws, ordinances, or instructions of BATA, and
- if Contractor does not cure such failure within a period of seven days (or such longer period as BATA may authorize in writing) after receipt of notice from BATA specifying such failure.

In the event of such termination for default, BATA may take over the Work and prosecute the same to completion, by contract or otherwise, and may take possession of and use all or any part of Contractor's material, tools, equipment, and appliances as may be on the site of the Work and which are necessary for performance of the Work. Upon completion of such work, Contractor is entitled to return of all unused materials and its equipment, tools and appliances, except that there shall be no claim on account of usual and ordinary depreciation, loss, or wear and tear.

If Contractor's right to proceed is so terminated, Contractor shall not be entitled to receive any further payment until the Work is completed. Contractor and its surety(s) shall be liable to BATA for any additional costs of completion of the Work, including compensation for additional managerial and administrative services, plus liquidated damages accruing under the terms of this

Contract from the Contract completion date, as extended by authorized time extensions, to the date of final completion.

If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of BATA.

GC-72 Contractor's Duties Upon Termination

After receipt of a Notice of Termination, either for default or convenience, Contractor shall:

- stop work under the Contract on the date and to the extent specified in the Notice of Termination;
- place no further orders or subcontracts for materials, services, or facilities, except as may be necessary for completion of such portion of the Work under the Contract as is not terminated;
- terminate all orders and subcontracts to the extent that they relate to the performance of Work terminated by the Notice of Termination;
- assign to BATA in a manner, at the times, and to the extent directed by BATA, all of the right, title, and interest of Contractor under the orders and subcontracts so terminated.

7.8 WARRANTY PROVISIONS

GC-73 Warranty

It is a condition of this Contract that the equipment, materials or design furnished, and workmanship performed by the Contractor or any subcontractor or supplier at any tier, shall conform to the requirements of this contract and shall be free of any defect. Neither inspection, testing and acceptance by BATA of such equipment, materials, design or work performed, partial or final payment, nor any provisions of the Contract shall relieve the Contractor from responsibility for any latent defect, gross mistakes or fraud. The Contractor and its surety(s) shall warrant, regardless of the warranties obtained from the Subcontractors, all equipment, materials, design and workmanship for a period of one year from the date of Final Acceptance by BATA of all of the work under the Contract or any discrete portion thereof. The Contractor's warranty with respect to work repaired or replaced shall also run for one year from the date of repair or replacement. In addition, the Contractor shall furnish a written guarantee covering all or certain items of work and shall extend any warranty from a subcontractor or supplier that exceeds the above warranty period. If such additional or varying guarantees are required, they will be specified in Section 6.0 - Special Conditions of this contract. BATA retains the right, at its sole discretion, to assign to a third Party any warranty received under this Contract. .

GC-74 Warranty Work

The Contractor is responsible for all warranty-covered repair work during the warranty period as specified above. The Contractor shall provide at its own expense, all spare products and tools required for repairs. To the extent practicable, BATA will allow the Contractor or its designated representative to perform such work. When warranty repairs are required, BATA and the Contractor's representative shall agree on the most appropriate remedy to be performed within a reasonable time. If the Contractor fails to remedy any failure or defect within a reasonable time, BATA shall have the right to replace, repair, or otherwise remedy the failure or defect at the Contractor's expense. At its discretion, BATA may also perform such work if it deems necessary to do so to meet its operational commitments or other requirements. The Contractor shall reimburse BATA of all expenses for such work including materials and labor. The hourly shop labor rates shall be based on BATA's current labor cost accounting system. The Contractor shall reimburse BATA for such work within sixty days of receipt of warranty claim.

GC-75 Warranty on Replaced Parts

Any materials, parts or components that are used for replacement under the initial warranty period shall be warranted again for the total original warranty period of the replaced particular material, part or component.

GC-76 Systematic Failures

In the event that, during the warranty period, repairs or modifications necessitated by defective design, material, or workmanship occur to an extent in excess of 10 percent of the components used for the same function in the same assembly or subsystem purchased under this Contract, the Contractor shall promptly furnish all necessary labor and material to effect such repairs and modifications for every system delivered under the Contract under the terms and conditions outlined, including systems in which the item has not yet failed. When requested by BATA, the Contractor will be required to provide a written failure analysis report for defective products supplied under this contract and which occurred during the warranty period. The report shall be received by BATA within forty-five (45) days from the date of request.

SECTION 8. MISCELLANEOUS

8-1. PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS

The Department maintains the following list of Prequalified and Tested Signing and Delineation Materials. The Engineer shall not be precluded from sampling and testing products on the list of Prequalified and Tested Signing and Delineation Materials.

The manufacturer of products on the list of Prequalified and Tested Signing and Delineation Materials shall furnish the Engineer a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each type of traffic product supplied.

For those categories of materials included on the list of Prequalified and Tested Signing and Delineation Materials, only those products shown within the listing may be used in the work. Other categories of products, not included on the list of Prequalified and Tested Signing and Delineation Materials, may be used in the work provided they conform to the requirements of the Standard Specifications.

Materials and products may be added to the list of Prequalified and Tested Signing and Delineation Materials if the manufacturer submits a New Product Information Form to the New Product Coordinator at the Transportation Laboratory. Upon a Departmental request for samples, sufficient samples shall be submitted to permit performance of required tests. Approval of materials or products will depend upon compliance with the specifications and tests the Department may elect to perform.

PAVEMENT MARKERS, PERMANENT TYPE

Retroreflective With Abrasion Resistant Surface (ARS)

1. Apex, Model 921AR (4" x 4")
2. Ennis Paint, Models C88 (4" x 4"), 911 (4" x 4") and C80FH
3. Ray-O-Lite, Models "AA" ARC II (4" x 4") and ARC Round Shoulder (4" x 4")
4. 3M Series 290 (3.5" x 4")
5. 3M Series 290 PSA
6. Glowlite, Inc Model 988AR (4" x 4")

Retroreflective With Abrasion Resistant Surface (ARS)

(for recessed applications only)

1. Ennis Paint, Model 948 (2.3" x 4.7")
2. Ennis Paint, Model 944SB (2" x 4")*
3. Ray-O-Lite, Model 2002 (2" x 4.6")
4. Ray-O-Lite, Model 2004 (2" x 4")*

*For use only in 4.5 inch wide (older) recessed slots

Non-Reflective, 4-inch Round

1. Apex Universal (Ceramic)
2. Apex Universal, Models 929 (ABS) and 929PP (Polypropylene)
3. Glowlite, Inc. (Ceramic) and PP (Polypropylene)
4. Hi-Way Safety, Inc., Models P20-2000W and 2001Y (ABS)
5. Interstate Sales, "Diamond Back" (Polypropylene)
6. Novabrite Models Cdot (White) Cdot-y (Yellow), Ceramic
7. Novabrite Models Pdot-w (White) Pdot-y (Yellow), Polypropylene
8. Three D Traffic Works TD10000 (ABS), TD10500 (Polypropylene)

PAVEMENT MARKERS, TEMPORARY TYPE

Temporary Markers For Long Term Day/Night Use (180 days or less)

1. Vega Molded Products "Temporary Road Marker" (3" x 4")
2. Filtrona Extrusion, Halftrack model 25, 26 and RPM 35

Temporary Markers For Short Term Day/Night Use (14 days or less)

(For seal coat or chip seal applications, clear protective covers are required)

1. Apex Universal, Model 932
2. Filtrona Extrusion, Models T.O.M., T.R.P.M., and "HH" (High Heat)
3. Hi-Way Safety, Inc., Model 1280/1281
4. Glowlite, Inc., Model 932

STRIPING AND PAVEMENT MARKING MATERIAL

Permanent Traffic Striping and Pavement Marking Tape

1. Advanced Traffic Marking, Series 300 and 400
2. Brite-Line, Series 1000
3. Brite-Line, "DeltaLine XRP"
4. Swarco Industries, "Director 35" (For transverse application only)
5. Swarco Industries, "Director 60"
6. 3M, "Stamark" Series 380 and 5730
7. 3M, "Stamark" Series 420 (For transverse application only)

Temporary (Removable) Striping and Pavement Marking Tape (180 days or less)

1. Advanced Traffic Marking, Series 200
2. Brite-Line, Series 100
3. Garlock Rubber Technologies, Series 2000
4. P.B. Laminations, Aztec, Grade 102
5. Swarco Industries, "Director-2"
6. Trelleborg Industries, R140 Series

7. 3M Series 620 "CR", and Series A750
8. 3M Series A145, Removable Black Line Mask
(Black Tape: for use only on Hot mix asphalt surfaces)
9. Advanced Traffic Marking Black "Hide-A-Line"
(Black Tape: for use only on Hot mix asphalt surfaces)
10. Brite-Line "BTR" Black Removable Tape
(Black Tape: for use only on Hot mix asphalt surfaces)
11. Trelleborg Industries, RB-140
(Black Tape: for use only on Hot mix asphalt surfaces)

Preformed Thermoplastic (Heated in place)

1. Flint Trading Inc., "Hot Tape"
2. Flint Trading Inc., "Premark Plus"
3. Ennis Paint Inc., "Flametape"

Ceramic Surfacing Laminate, 6" x 6"

1. Highway Ceramics, Inc.

CLASS 1 DELINEATORS

One Piece Driveable Flexible Type, 66-inch

1. Filtrona Extrusion, "Flexi-Guide Models 400 and 566"
2. Carsonite, Curve-Flex CFRM-400
3. Carsonite, Roadmarker CRM-375
4. FlexStake, Model 654 TM
5. GreenLine Model CGD1-66

Special Use Type, 66-inch

1. Filtrona Extrusion, Model FG 560 (with 18-inch U-Channel base)
2. Carsonite, "Survivor" (with 18-inch U-Channel base)
3. Carsonite, Roadmarker CRM-375 (with 18-inch U-Channel base)
4. FlexStake, Model 604
5. GreenLine Model CGD (with 18-inch U-Channel base)
6. Impact Recovery Model D36, with #105 Driveable Base
7. Safe-Hit with 8-inch pavement anchor (SH248-GP1)
8. Safe-Hit with 15-inch soil anchor (SH248-GP2) and with 18-inch soil anchor (SH248-GP3)

Surface Mount Type, 48-inch

1. Bent Manufacturing Company, Masterflex Model MFEX 180-48
2. Carsonite, "Channelizer"
3. FlexStake, Models 704, 754 TM, and EB4
4. Impact Recovery Model D48, with #101 Fixed (Surface-Mount) Base
5. Three D Traffic Works "Channelflex" ID No. 522248W

CHANNELIZERS

Surface Mount Type, 36-inch

1. Bent Manufacturing Company, Masterflex Models MF-360-36 (Round) MF-180-36 (Flat) and MFEX 180—36
2. Filtrona Extrusion, Flexi-Guide Models FG300PE, FG300UR, and FG300EFX
3. Carsonite, "Super Duck" (Round SDR-336)
4. Carsonite, Model SDCF03601MB "Channelizer"
5. FlexStake, Models 703, 753 TM, and EB3
6. GreenLine, Model SMD-36
7. Hi-way Safety, Inc. "Channel Guide Channelizer" Model CGC36
8. Impact Recovery Model D36, with #101 Fixed (Surface-Mount) Base
9. Safe-Hit, Guide Post, Model SH236SMA and Dura-Post, Model SHL36SMA
10. Three D Traffic Works "Boomerang" 5200 Series

Lane Separation System

1. Filtrona Extrusion, "Flexi-Guide (FG) 300 Curb System"
2. Qwick Kurb, "Klemmfix Guide System"
3. Dura-Curb System
4. Tuff Curb

CONICAL DELINEATORS, 42-inch

(For 28-inch Traffic Cones, see Standard Specifications)

1. Bent Manufacturing Company "T-Top"
2. Plastic Safety Systems "Navigator-42"
3. TrafFix Devices "Grabber"
4. Three D Traffic Works "Ringtop" TD7000, ID No. 742143
5. Three D Traffic Works, TD7500
6. Work Area Protection Corp. C-42

OBJECT MARKERS

Type "K", 18-inch

1. Filtrona Extrusion, Model FG318PE
2. Carsonite, Model SMD 615
3. FlexStake, Model 701 KM
4. Safe-Hit, Model SH718SMA

Type "Q" Object Markers, 24-inch

1. Bent Manufacturing "Masterflex" Model MF-360-24
2. Filtrona Extrusion, Model FG324PE
3. Carsonite, "Channelizer"
4. FlexStake, Model 701KM
5. Safe-Hit, Models SH824SMA_WA and SH824GP3_WA

6. Three D Traffic Works ID No. 531702W and TD 5200
7. Three D Traffic Works ID No. 520896W

CONCRETE BARRIER MARKERS AND TEMPORARY RAILING (TYPE K) REFLECTORS

Impactable Type

1. ARTUK, "FB"
2. Filtrona Extrusion, Models PCBM-12 and PCBM-T12
3. Duraflex Corp., "Flexx 2020" and "Electriflexx"
4. Hi-Way Safety, Inc., Model GMKRM100
5. Plastic Safety Systems "BAM" Models OM-BARR and OM-BWAR
6. Three D Traffic Works "Roadguide" Model TD 9300

Non-Impactable Type

1. ARTUK, JD Series
2. Plastic Safety Systems "BAM" Models OM-BITARW and OM-BITARA
3. Vega Molded Products, Models GBM and JD
4. Plastic Vacuum Forming, "Cap-It C400"

METAL BEAM GUARD RAIL POST MARKERS

(For use to the left of traffic)

1. Filtrona Extrusion, "Mini" (3" x 10")
2. Creative Building Products, "Dura-Bull, Model 11201"
3. Duraflex Corp., "Railrider"
4. Plastic Vacuum Forming, "Cap-It C300"

CONCRETE BARRIER DELINEATORS, 16-inch

(For use to the right of traffic)

1. Filtrona Extrusion, Model PCBM T-16
2. Safe-Hit, Model SH216RBM
3. Three D Traffic Works "Roadguide" Model 9400

CONCRETE BARRIER-MOUNTED MINI-DRUM (10" x 14" x 22")

1. Stinson Equipment Company "SaddleMarker"

GUARD RAILING DELINEATOR

(Place top of reflective element at 48 inches above plane of roadway)

Wood Post Type, 27-inch

1. Filtrona Extrusion, FG 427 and FG 527
2. Carsonite, Model 427
3. FlexStake, Model 102 GR
4. GreenLine GRD 27
5. Safe-Hit, Model SH227GRD

6. Three D Traffic Works "Guardflex" TD9100
7. New Directions Mfg, NDM27

Steel Post Type

1. Carsonite, Model CFGR-327

RETROREFLECTIVE SHEETING

Channelizers, Barrier Markers, and Delineators

1. Avery Dennison T-6500 Series (For rigid substrate devices only)
2. Avery Dennison WR-7100 Series
3. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
4. Reflexite, PC-1000 Metalized Polycarbonate
5. Reflexite, AC-1000 Acrylic
6. Reflexite, AP-1000 Metalized Polyester
7. Reflexite, Conformalight, AR-1000 Abrasion Resistant Coating
8. 3M, High Intensity

Traffic Cones, 4-inch and 6-inch Sleeves

1. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
2. Reflexite, Vinyl, "TR" (Semi-transparent) or "Conformalight"
3. 3M Series 3840
4. Avery Dennison S-9000C

Drums

1. Avery Dennison WR-6100
2. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
3. Reflexite, "Conformalight", "Super High Intensity" or "High Impact Drum Sheeting"
4. 3M Series 3810

Barricades: Type I, Medium-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Nippon Carbide Industries, CN8117
2. Avery Dennison, W 1100 series
3. 3M Series CW 44

Barricades: Type II, Medium-High-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Avery Dennison, W-2100 Series

Vertical Clearance Signs: Structure Mounted

1. 3M Model 4061, Diamond Grade DG3, Fluorescent Yellow

Signs: Type II, Medium-High-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Avery Dennison, T-2500 Series
2. Nippon Carbide Industries, Nikkalite 18000

Signs: Type III, High-Intensity (Typically Encapsulated Glass-Bead Element)

1. Avery Dennison, T-5500A and T-6500 Series
2. Nippon Carbide Industries, Nikkalite Brand Ultralite Grade II
3. 3M 3870 and 3930 Series

Signs: Type IV, High-Intensity (Typically Unmetallized Microprismatic Element)

1. Avery Dennison, T-6500 Series
2. Nippon Carbide Industries, Crystal Grade, 94000 Series
3. Nippon Carbide Industries, Model No. 94847 Fluorescent Orange
4. 3M Series 3930 and Series 3924S

Signs: Type VI, Elastomeric (Roll-Up) High-Intensity, without Adhesive

1. Avery Dennison, WU-6014
2. Novabrite LLC, "Econobrite"
3. Reflexite "Vinyl"
4. Reflexite "SuperBright"
5. Reflexite "Marathon"
6. 3M Series RS20

Signs: Type VII, Super-High-Intensity (Typically Unmetallized Microprismatic Element)

1. 3M Series 3924S, Fluorescent Orange
2. 3M LDP Series 3970

Signs: Type VIII, Super-High-Intensity (Typically Unmetallized Microprismatic Element)

1. Avery Dennison, T-7500 Series
2. Avery Dennison, T-7511 Fluorescent Yellow
3. Avery Dennison, T-7513 Fluorescent Yellow Green
4. Avery Dennison, W-7514 Fluorescent Orange
5. Nippon Carbide Industries, Nikkalite Crystal Grade Series 92800
6. Nippon Carbide Industries, Nikkalite Crystal Grade Model 92847 Fluorescent Orange

Signs: Type IX, Very-High-Intensity (Typically Unmetallized Microprismatic Element)

1. 3M VIP Series 3981 Diamond Grade Fluorescent Yellow
2. 3M VIP Series 3983 Diamond Grade Fluorescent Yellow/Green
3. 3M VIP Series 3990 Diamond Grade

4. Avery Dennison T-9500 Series
5. Avery Dennison, T9513, Fluorescent Yellow Green
6. Avery Dennison, W9514, Fluorescent Orange
7. Avery Dennison, T-9511 Fluorescent Yellow

SPECIALTY SIGNS

1. Reflexite "Endurance" Work Zone Sign (with Semi-Rigid Plastic Substrate)

ALTERNATIVE SIGN SUBSTRATES

Fiberglass Reinforced Plastic (FRP) and Expanded Foam PVC

1. Fiber-Brite (FRP)
2. Sequentia, "Polyplate" (FRP)
3. Inteplast Group "InteCel" (0.5 inch for Post-Mounted CZ Signs, 48-inch or less)(PVC)

Aluminum Composite, Temporary Construction Signs and Permanent Signs up to 4 foot, 7 Inches

1. Alcan Composites "Dibond Material, 80 mils"
2. Mitsubishi Chemical America, Alpolic 350
3. Bone Safety Signs, Bone Light ACM

SECTION 8.2 – CONCRETE

8-2.1 PORTLAND CEMENT CONCRETE

Portland cement concrete shall conform to the provisions in Section 90, "Portland Cement Concrete," of the Standard Specifications and these special provisions.

The Department maintains a list of sources of fine and coarse aggregate that have been approved for use with a reduced amount of supplementary cementitious material in the total amount of cementitious material to be used. A source of aggregate will be considered for addition to the approved list if the producer of the aggregate submits to the Transportation Laboratory certified test results from a qualified testing laboratory that verify the aggregate complies with the requirements. Before the testing starts, the aggregate test shall be registered with the Department. A registration number can be obtained by calling (916) 227-7228. The registration number shall be used as the identification for the aggregate sample in correspondence with the Department. Upon request, a split of the tested sample shall be provided to the Department. Approval of aggregate will depend upon compliance with the specifications, based on the certified test results submitted, together with any replicate testing the Department may elect to perform. Approval will expire 3 years from the date the most recent registered and evaluated sample was collected from the aggregate source.

Qualified testing laboratories shall conform to the following requirements:

1. Laboratories performing ASTM Designation: C 1293 shall participate in the Cement and Concrete Reference Laboratory (CCRL) Concrete Proficiency Sample Program and shall have received a score of 3 or better on each test of the previous 2 sets of concrete samples.
2. Laboratories performing ASTM Designation: C 1260 shall participate in the Cement and Concrete Reference Laboratory (CCRL) Pozzolan Proficiency Sample Program and shall have received a score of 3 or better on the shrinkage and soundness tests of the previous 2 sets of pozzolan samples.

Aggregates on the list shall conform to one of the following requirements:

1. When the aggregate is tested in conformance with the requirements in California Test 554 and ASTM Designation: C 1293, the average expansion at one year shall be less than or equal to 0.040 percent; or
2. When the aggregate is tested in conformance with the requirements in California Test 554 and ASTM Designation: C 1260, the average of the expansion at 16 days shall be less than or equal to 0.15 percent.

If the aggregates used in the concrete are on the Department's list, the minimum amount of supplementary cementitious material shall conform to the following:

1. If fly ash or natural pozzolan conforming to the provisions in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials," of the Standard Specifications is used, the minimum amount of supplementary cementitious material shall be 15 percent by weight of the total cementitious material; or
2. If silica fume conforming to the provisions in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials," of the Standard Specifications is used, the

minimum amount of supplementary cementitious material shall be 7 percent by weight of the total cementitious material.

The limitation on tricalcium silicate (C_3S) content in Type II cement specified in Section 90-2.01A, "Cement," of the Standard Specifications shall not apply.

8-2.2 CORROSION CONTROL FOR PORTLAND CEMENT CONCRETE

Portland cement concrete at all Bridge Toll Plazas is considered to be in a corrosive environment and shall conform to the provisions in Section 90, "Portland Cement Concrete," of the Standard Specifications and these special provisions.

Cementitious material to be used in portland cement concrete shall conform to the provisions in Section 90-2, "Materials," of the Standard Specifications, and shall be a combination of either Type II or Type V portland cement and supplementary cementitious material.

Cementitious material to be used in portland cement concrete shall conform to the provisions in Section 90-2, "Materials," of the Standard Specifications, and shall be a combination of Type II portland cement and supplementary cementitious material.

Concrete in a corrosive environment shall contain not less than 675 pounds of cementitious material per cubic yard.

Reduction in the cementitious material content specified or ordered, in conformance with the provisions in Section 90-4.05, "Optional Use of Chemical Admixtures," of the Standard Specifications, is not permitted for concrete in a corrosive environment.

Unless otherwise specified, for concrete in a corrosive environment, the amount of portland cement shall be 75 percent by weight, and the amount of supplementary cementitious material shall be 25 percent by weight, of the total amount of cementitious material to be used in the concrete mix.

For concrete at all Bridge Toll Plazas, the cementitious material shall be comprised of either:

- A. 20 percent by weight of either flyash or natural pozzolan, 5 percent by weight of silica fume, and 75 percent by weight of portland cement.
- B. 10 percent by weight of silica fume and 90 percent by weight of portland cement.
- C. 50 percent by weight of ground granulated blast furnace slag, and 50 percent by weight of portland cement.
- D. 10 percent by weight of metakaolin conforming to AASHTO Designation: M 295 Class N and 90 percent by weight of portland cement. Metakaolin shall also conform to the following chemical and physical requirements:

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Chemical Requirements	Percent
Silicon Dioxide (SiO ₂) + Aluminum Oxide (Al ₂ O ₃)	92.0 min.
Calcium Oxide (CaO)	1.0 max
Sulfur Trioxide (SO ₃)	1.0 max.
Loss on ignition	1.2 max.
Available Alkalies (as Na ₂ O) equivalent	1.0 max.

Physical Requirements	Percent
Retained No. 325 sieve	2.0 max
Strength Activity Index with portland cement	
7 days	100 (minimum % of control)
28 days	100 (minimum % of control)

The amount of free water used in concrete in a corrosive environment shall not exceed 305 pounds per cubic yard plus 45 pounds for each 100 pounds of cementitious material in excess of 675 pounds per cubic yard.

Full compensation for conforming to the above requirements shall be considered as included in the contract prices paid for the various contract items of work, and no additional compensation will be allowed therefor.

8-3.1 WELDING

GENERAL

Flux cored welding electrodes conforming to the requirements of AWS A5.20 E6XT-4 or E7XT-4 shall not be used to perform welding for this project.

Wherever reference is made to the following AWS welding codes in the Standard Specifications, on the plans, or in these special provisions, the year of adoption for these codes shall be as listed:

AWS Code	Year of Adoption
D1.1	2006
D1.4	2005
D1.5	2002
D1.6	1999

Requirements of the AWS welding codes shall apply unless otherwise specified in the Standard Specifications, on the plans, or in these special provisions. Wherever the abbreviation AWS is used, it shall be equivalent to the abbreviations ANSI/AWS or AASHTO/AWS.

Section 6.1.1.1 of AWS D1.5 is replaced with the following:

Quality Control (QC) shall be the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing of each weld joint prior to welding, during welding, and after welding as specified in this section and as necessary to ensure that materials and workmanship conform to the requirements of the contract documents.

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Unless otherwise specified, Sections 6.1.3 through 6.1.4.3 of AWS D1.1, Section 7.1.2 of AWS D1.4, and Sections 6.1.1.2 through 6.1.3.3 of AWS D1.5 are replaced with the following:

The QC Inspector shall be the duly designated person who acts for and on behalf of the Contractor for inspection, testing, and quality related matters for all welding.

Quality Assurance (QA) is the prerogative of the Engineer. The QA Inspector is the duly designated person who acts for and on behalf of the Engineer.

The QC Inspector shall be responsible for quality control acceptance or rejection of materials and workmanship, and shall be currently certified as an AWS Certified Welding Inspector (CWI) in conformance with the requirements in AWS QC1, "Standard for AWS Certification of Welding Inspectors."

The QC Inspector may be assisted by an Assistant QC Inspector provided that this individual is currently certified as an AWS Certified Associate Welding Inspector (CAWI) in conformance with the requirements in AWS QC1, "Standard for AWS Certification of Welding Inspectors." The Assistant QC Inspector may perform inspection under the direct supervision of the QC Inspector provided the assistant is always within visible and audible range of the QC Inspector. The QC Inspector shall be responsible for signing all reports and for determining if welded materials conform to workmanship and acceptance criteria. The ratio of QC Assistants to QC Inspectors shall not exceed 5 to 1.

When the term "Inspector" is used without further qualification, it shall refer to the QC Inspector.

When any work is welded in conformance with the provisions in Section 75, "Miscellaneous Metal," of the Standard Specifications, not including Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications, Section 6.1.4 of AWS D1.1 is replaced with the following:

The QC Inspector shall be responsible for quality control acceptance or rejection of materials and workmanship and shall be currently certified as an AWS CWI in conformance with the requirements in AWS QC1, "Standard for AWS Certification of Welding Inspectors," or as a Welding Inspector Specialist (WIS) in conformance with the requirements in AWS B5.2, "Specification for the Qualification of Welding Inspector Specialists and Welding Inspector Assistants."

Section 6.14.6, "Personnel Qualification," of AWS D1.1, Section 7.8, "Personnel Qualification," of AWS D1.4, and Section 6.1.3.4, "Personnel Qualification," of AWS D1.5 are replaced with the following:

Personnel performing nondestructive testing (NDT) shall be qualified and certified in conformance with the requirements of the American Society for Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A and the Written Practice of the NDT firm. The Written Practice of the NDT firm shall meet or exceed the guidelines of the ASNT Recommended Practice No. SNT-TC-1A. Individuals who perform NDT, review the results, and prepare the written reports shall be either:

- A. Certified NDT Level II technicians, or;
- B. Level III technicians who hold a current ASNT Level III certificate in that discipline and are authorized and certified to perform the work of Level II technicians.

Section 6.5.4 of AWS D1.5 is replaced with the following:

The QC Inspector shall inspect and approve each joint preparation, assembly practice, welding technique, joint fit-up, and the performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code and the approved Welding Procedure Specification (WPS) are met. The QC Inspector shall examine the work to make certain that it meets the requirements of Sections 3 and 6.26. The size and contour of all welds shall be measured using suitable gages. Visual inspection for cracks in welds and base metal, and for other discontinuities shall be aided by strong light, magnifiers, or such other devices as may be helpful. Acceptance criteria different from those specified in this code may be used when approved by the Engineer.

Section 6.6.5, "Nonspecified NDT Other than Visual," of AWS D1.1, Section 7.6.5 of AWS D1.4 and Section 6.6.5 of AWS D1.5 shall not apply.

For any welding, the Engineer may direct the Contractor to perform NDT that is in addition to the visual inspection or NDT specified in the AWS or other specified welding codes, in the Standard Specifications, or in these special provisions. Except as provided for in these special provisions, additional NDT required by the Engineer, and associated repair work, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications. Prior to release of welded material by the Engineer, if testing by NDT methods other than those originally specified discloses an attempt to defraud or reveals a gross nonconformance, all costs associated with the repair of the deficient area, including NDT of the weld and of the repair, and any delays caused by the repair, shall be at the Contractor's expense. A gross nonconformance is defined as the sum of planar type rejectable indications in more than 20 percent of the tested length.

When less than 100 percent of NDT is specified for any weld, it is expected that the entire length of weld meet the specified acceptance-rejection criteria. Should any welding deficiencies be discovered by additional NDT directed or performed by the Engineer that utilizes the same NDT method as that originally specified, all costs associated with the repair of the deficient area, including NDT of the weld and of the weld repair, and any delays caused by the repair, shall be at the Contractor's expense.

Repair work to correct welding deficiencies discovered by visual inspection directed or performed by the Engineer, and any associated delays or expenses caused to the Contractor by performing these repairs, shall be at the Contractor's expense.

The Engineer shall have the authority to verify the qualifications or certifications of any welder, QC Inspector, or NDT personnel to specified levels by retests or other means approved by the Engineer.

Inspection and approval of all joint preparations, assembly practices, joint fit-ups, welding techniques, and the performance of each welder, welding operator, and tack welder shall be documented by the QC Inspector on a daily basis for each day welding is performed. For each inspection, including fit-up, Welding Procedure Specification (WPS) verification, and final weld inspection, the QC Inspector shall confirm and document compliance with the requirements of the AWS or other specified code criteria and the requirements of these special provisions on all welded joints before welding, during welding, and after the completion of each weld.

In addition to the requirements specified in the applicable code, the period of effectiveness for a welder's or welding operator's qualification shall be a maximum of 3 years for the same weld process, welding position, and weld type. If welding will be performed without gas shielding, then qualification shall also be without gas shielding. Excluding welding of fracture critical members, a valid qualification at the beginning of work on a contract will be acceptable for the entire period of the contract, as long as the welder's or welding operator's work remains satisfactory.

In addition to the requirements of AWS D1.1, welding procedures qualification for work welded in conformance with that code shall conform to the following:

When a nonstandard weld joint is to be made using a combination of WPSs, a single test may be conducted combining the WPSs to be used in production, provided the essential variables, including weld bead placement, of each process are limited to those established in Table 4.5.

In addition to the requirements of AWS D1.5, Section 5.12 or 5.13, welding procedures qualification for work welded in conformance with that code shall conform to the following requirements:

- A. Unless considered prequalified, fillet welds shall be qualified in each position. The fillet weld soundness test shall be conducted using the essential variables of the WPS as established by the Procedure Qualification Record (PQR).
- B. For qualification of joints that do not conform to Figures 2.4 and 2.5 of AWS D1.5, a minimum of two WPS qualification tests are required. The tests shall be conducted using both Figure 5.1 and Figure 5.3. The test conforming to Figure 5.1 shall be conducted in conformance with AWS D1.5, Section 5.12 or 5.13. The test conforming to Figure 5.3 shall be conducted using the welding electrical parameters that were established for the test conducted conforming to Figure 5.1. The ranges of welding electrical parameters established during welding per Figure 5.1 in conformance with AWS D1.5, Section 5.12, shall be further restricted according to the limits in Table 5.3 during welding per Figure 5.3.
- C. Multiple zones within a weld joint may be qualified. The travel speed, amperage, and voltage values that are used for tests conducted per AWS D1.5 Section 5.13 shall be consistent for each pass in a weld joint, and shall in no case vary by more than ± 10 percent for travel speed, ± 10 percent for amperage, and ± 7 percent for voltage as measured from a predetermined target value or average within each weld pass or zone.

The travel speed shall in no case vary by more than ± 15 percent when using submerged arc welding.

- D. For a WPS qualified in conformance with AWS D1.5 Section 5.13, the values to be used for calculating ranges for current and voltage shall be based on the average of all weld passes made in the test. Heat input shall be calculated using the average of current and voltage of all weld passes made in the test for a WPS qualified in conformance with Section 5.12 or 5.13.
- E. Macroetch tests are required for WPS qualification tests, and acceptance shall be per AWS D1.5 Section 5.19.3.
- F. When a nonstandard weld joint is to be made using a combination of WPSs, a test conforming to Figure 5.3 may be conducted combining the WPSs to be used in production, provided the essential variables, including weld bead placement, of each process are limited to those established in Table 5.3.
- G. Prior to preparing mechanical test specimens, the PQR welds shall be inspected by visual and radiographic tests. Backing bar shall be 3 inches in width and shall remain in place during NDT testing. Results of the visual and radiographic tests shall comply with AWS D1.5 Section 6.26.2, excluding Section 6.26.2.2. Test plates that do not comply with both tests shall not be used.

WELDING QUALITY CONTROL

Welding quality control shall conform to the requirements in the AWS or other specified welding codes, the Standard Specifications, and these special provisions.

Unless otherwise specified, welding quality control shall apply when any work is welded in conformance with the provisions in Section 49, "Piling," Section 52, "Reinforcement," Section 55, "Steel Structures," or Section 75-1.035, "Bridge Joint Restrainer Units," of the Standard Specifications.

All welding will require inspection by the Engineer. The Contractor shall request inspection at least 3 business days prior to the beginning of welding for locations within California and 5 business days for locations outside of California. The Contractor shall request inspection at:

<http://www.dot.ca.gov/hq/esc/Translab/OSM/smbforms.htm>

Continuous inspection shall be provided when any welding is being performed. Continuous inspection, as a minimum, shall include having a QC Inspector within such close proximity of all welders or welding operators so that inspections by the QC Inspector of each welding operation at each welding location does not lapse for a period exceeding 30 minutes.

When joint weld details that are not prequalified to the details of Section 3 of AWS D1.1 or to the details of Figure 2.4 or 2.5 of AWS D1.5 are proposed for use in the work, the joint details, their intended locations, and the proposed welding parameters and essential variables, shall be approved by the Engineer. The Contractor shall allow the Engineer 15 days to complete the review of the proposed joint detail locations. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is

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delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications. Upon approval of the proposed joint detail locations and qualification of the proposed joint details, welders and welding operators using these details shall perform a qualification test plate using the WPS variables and the joint detail to be used in production. The test plate shall have the maximum thickness to be used in production and a minimum length of 18 inches. The test plate shall be mechanically and radiographically tested. Mechanical and radiographic testing and acceptance criteria shall be as specified in the applicable AWS codes.

The Engineer will witness all qualification tests for WPSs that were not previously approved by the Department. Unless otherwise specified, an approved independent third party will witness the qualification tests for welders or welding operators. The independent third party shall be a current CWI and shall not be an employee of the contractor performing the welding. The Contractor shall allow the Engineer 15 days to review the qualifications and copy of the current certification of the independent third party. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications. The Contractor shall notify the Engineer 7 days prior to performing any qualification tests. Witnessing of qualification tests by the Engineer shall not constitute approval of the intended joint locations, welding parameters, or essential variables.

The Contractor shall designate in writing a welding Quality Control Manager (QCM). The QCM shall be responsible directly to the Contractor for the quality of welding, including materials and workmanship, performed by the Contractor and subcontractors.

The QCM shall be the sole individual responsible to the Contractor for submitting, receiving, reviewing, and approving all correspondence, required submittals, and reports to and from the Engineer. The QCM shall be a registered professional engineer or shall be currently certified as a CWI.

Unless the QCM is hired by a subcontractor providing only QC services, the QCM shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project. The QCM may be an employee of the Contractor.

Welding inspection personnel or NDT firms to be used in the work shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project, except for the following conditions:

- A. The work is welded in conformance with AWS D1.5 and is performed at a permanent fabrication or manufacturing facility that is certified under the AISC Quality Certification

Program, Category Cbr, Major Steel Bridges and Fracture Critical endorsement F, when applicable.

- B. The work is welded in conformance with AWS D1.1 at a permanent pipe manufacturing or fabrication facility that maintains a QC program that is independent from production.

For welding performed at such facilities, the inspection personnel or NDT firms may be employed or compensated by the facility performing the welding provided the facility maintains a QC program that is independent from production.

Prior to submitting the Welding Quality Control Plan (WQCP) required herein, a prewelding meeting between the Engineer, the Contractor's QCM, and a representative from each entity performing welding or inspection for this project, shall be held to discuss the requirements for the WQCP.

The Contractor shall submit to the Engineer, in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, 2 copies of a separate WQCP for each subcontractor or supplier for each item of work for which welding is to be performed.

The Contractor shall allow the Engineer 15 days to review the WQCP submittal after a complete plan has been received. No welding shall be performed until the WQCP is approved in writing by the Engineer. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

An amended WQCP or any addendum to the approved WQCP shall be submitted to, and approved in writing by the Engineer, for proposed revisions to the approved WQCP. An amended WQCP or addendum will be required for revisions to the WQCP, including but not limited to a revised WPS; additional welders; changes in NDT firms, QC, or NDT personnel or procedures; or updated systems for tracking and identifying welds. The Engineer shall have 7 days to complete the review of the amended WQCP or addendum. Work affected by the proposed revisions shall not be performed until the amended WQCP or addendum has been approved. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Information regarding the contents, format, and organization of a WQCP, is available at the Transportation Laboratory and at:

<http://www.dot.ca.gov/hq/esc/Translab/OSM/smbresources.htm>

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After final approval of the WQCP, amended WQCP, or addendum, the Contractor shall submit 7 copies to the Engineer of the approved documents. A copy of the Engineer approved document shall be available at each location where welding is to be performed.

A daily production log for welding shall be kept for each day that welding is performed. The log shall clearly indicate the locations of all welding. The log shall include the welders' names, amount of welding performed, any problems or deficiencies discovered, and any testing or repair work performed, at each location. The daily report from each QC Inspector shall also be included in the log.

The following items shall be included in a Welding Report that is to be submitted to the Engineer within 15 days following the performance of any welding:

- A. A daily production log.
- B. Reports of all visual weld inspections and NDT.
- C. Radiographs and radiographic reports, and other required NDT reports.
- D. A summary of welding and NDT activities that occurred during the reporting period.
- E. Reports of each application of heat straightening.
- F. A summarized log listing the rejected lengths of weld by welder, position, process, joint configuration, and piece number.
- G. Documentation that the Contractor has evaluated all radiographs and other nondestructive tests and corrected all rejectable deficiencies, and that all repaired welds have been reexamined using the required NDT and found acceptable.

The following information shall be clearly written on the outside of radiographic envelopes: name of the QCM, name of the nondestructive testing firm, name of the radiographer, date, contract number, complete part description, and all included weld numbers, report numbers, and station markers or views, as detailed in the WQCP. In addition, all interleaves shall have clearly written on them the part description and all included weld numbers and station markers or views, as detailed in the WQCP. A maximum of 2 pieces of film shall be used for each interleave.

Reports of all visual inspections and NDT shall be signed by the inspector or technician and submitted daily to the QCM for review and signature prior to submittal to the Engineer. Corresponding names shall be clearly printed or typewritten next to all signatures. Reports of all NDT, whether specified, additional, or informational, performed by the Contractor shall be submitted to the Engineer.

The Engineer will review the Welding Report to determine if the Contractor is in conformance with the WQCP. Except for steel pipe piling, the Engineer shall be allowed 15 days to review the report and respond in writing after the complete Welding Report has been received. Prior to receiving notification from the Engineer of the Contractor's conformance with the WQCP, the Contractor may encase in concrete or cover welds for which the Welding Report has been submitted. However, should the Contractor elect to encase or cover those welds prior to receiving notification from the Engineer, it is expressly understood that the Contractor shall not

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be relieved of the responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Material not conforming to these requirements will be subject to rejection. Should the Contractor elect to wait to encase or cover welds pending notification by the Engineer, and in the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

For steel pipe piling, including bar reinforcement in the piling, the Contractor shall allow the Engineer 2 business days to review the Welding Report and respond in writing after the required items have been received. No field welded steel pipe piling shall be installed, and no reinforcement in the piling shall be encased in concrete until the Engineer has approved the above requirements in writing.

In addition to the requirements in AWS D1.1 and AWS D1.5, second-time excavations of welds or base metal to repair unacceptable discontinuities, regardless of NDT method, and all repairs of cracks require prior approval of the Engineer.

The Engineer shall be notified immediately in writing when welding problems, deficiencies, base metal repairs, or any other type of repairs not submitted in the WQCP are discovered, and also of the proposed repair procedures to correct them. For requests to perform second-time repairs or repairs of cracks, the Contractor shall include an engineering evaluation of the proposed repair. The engineering evaluation, at a minimum, shall address the following:

- A. What is causing each defect?
- B. Why the repair will not degrade the material properties?
- C. What steps are being taken to prevent similar defects from happening again?

The Contractor shall allow the Engineer 7 days to review these procedures. No remedial work shall begin until the repair procedures are approved in writing by the Engineer. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The QCM shall sign and furnish to the Engineer, a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each item of work for which welding was performed. The certificate shall state that all of the materials and workmanship incorporated in the work, and all required tests and inspections of this work, have been performed in conformance with the details shown on the plans, the Standard Specifications, and these special provisions.

WELDING FOR OVERHEAD SIGN AND POLE STRUCTURES

The Contractor shall meet the following requirements for any work welded in conformance with the provisions in Section 56-1, "Overhead Sign Structures," or Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications.

Welding inspection personnel or NDT firms to be used in the work shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project, except for when the welding is performed at a permanent fabrication or manufacturing facility which is certified under the AISC Quality Certification Program, Category Sbd, Conventional Steel Building Structures.

Welding Qualification Audit

Contractors or subcontractors performing welding operations for overhead sign and pole structures shall not deliver materials to the project without having successfully completed the Department's "Manufacturing Qualification Audit for Overhead Sign and Pole Structures," hereinafter referred to as the audit, not more than one year prior to the delivery of the materials. The Engineer will perform the audit. Copies of the audit form, and procedures for requesting and completing the audit, are available at the Transportation Laboratory or at:

<http://www.dot.ca.gov/hq/esc/Translab/OSM/smbresources.htm>

An audit that was approved by the Engineer no more than one year prior to the beginning of work on this contract will be acceptable for the entire period of this contract, provided the Engineer determines the audit was for the same type of work that is to be performed on this contract.

Successful completion of an audit shall not relieve the Contractor of the responsibility for furnishing materials or producing finished work of the quality specified in these special provisions and as shown on the plans.

Welding Report

A daily production log for welding shall be kept for each day that welding is performed. The log shall clearly indicate the locations of all welding. The log shall include the welders' names, amount of welding performed, any problems or deficiencies discovered, and any testing or repair work performed, at each location. The daily report from each QC Inspector shall also be included in the log.

A Welding Report shall be submitted to the Engineer 48 hours prior to furnishing a Certificate of Compliance for the material in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The Welding Report shall include the following items:

- A. A daily production log.

- B. Reports of all visual weld inspections and NDT.
- C. Radiographs and radiographic reports, and other required NDT reports.
- D. summary of welding and NDT activities that occurred during the reporting period.
- E. Documentation that the Contractor has evaluated all radiographs and other nondestructive tests and corrected all rejectable deficiencies, and all repaired welds have been reexamined by the required NDT and found acceptable.

Welding Report

For work welded in conformance with the provisions in Section 56-1, "Overhead Sign Structures," or Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications, a Welding Report shall be submitted in conformance with the provisions in "Welding Quality Control" of these special provisions.

STEEL PIPE PILING QUALIFICATION AUDIT

The Contractor shall submit documentation that one of the following steel pipe piling qualification audits has been successfully completed before welding operations are performed, other than field welding, for steel pipe piling:

- A. "Class R Steel Pipe Piling Qualification Audit"
- B. "Class N Steel Pipe Piling Qualification Audit"

An audit shall have been completed for each pipe pile diameter, thickness, grade of steel, and class of piling, to be supplied for this project. The procedures for requesting and completing the audit are available at:

<http://www.dot.ca.gov/hq/esc/Translab/OSM/smbresources.htm>

An audit that was approved by the Department no more than 3 years before the beginning of work on this contract will be acceptable for the entire period of this contract, provided the Engineer determines the audit was for the same type of work that is to be performed on this contract.

A list of facilities who have successfully completed the audit and are authorized to provide material for this contract is available at:

http://www.dot.ca.gov/hq/esc/Translab/OSM/smdocuments/Internet_auditlisting.pdf

Successful completion of an audit shall not relieve the Contractor of the responsibility for furnishing materials or producing finished work of the quality specified in these special provisions and as shown on the plans.

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PAYMENT

Full compensation for conforming to the requirements of "Welding" shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

SECTION 9. (BLANK)
NOT USED

SECTION 10. CONSTRUCTION DETAILS

SECTION 10-1. GENERAL

10-1.01 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

A first order of work shall be providing equipment and material cut-sheets for all the listed components at a minimum for review and approval prior to procurement and installation of said item. Nothing shall be ordered or installed until review and approval by the Engineer has been provided. The Contractor shall factor in a minimum of 5 calendar days for review of each submittal package. This review time shall be included into their proposed project schedule.

Electrical material shall be immediately ordered subsequent to approval of equipment and material cut-sheets. A written statement from the vendor that the order for electrical material has been received and accepted by the vendor shall be provided to the Engineer. The statement must show the dates that the materials will be shipped.

A first order of work shall be providing shop drawings for structural steel members. The Contractor shall factor in a minimum of 5 calendar days for review of each submittal package. The structural steel members shall be immediately ordered subsequent to approval of shop drawings. A written statement from the vendor that the order for structural steel has been received and accepted by the vendor shall be provided to the Engineer. The statement must show the dates that the materials will be shipped.

A first order of work shall be the Richmond San Rafael and Antioch Bridges. The Contractor's attention is directed to SC -5 "Liquidated Damages".

Full compensation for conforming to those requirements will be considered as included in the prices paid for the various items of work and no additional compensation will be allowed thereof.

10-1.10 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES

Flagging, signs, and temporary traffic control devices furnished, installed, maintained, and removed when no longer required shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Category 1 temporary traffic control devices are defined as small and lightweight (less than 100 pounds) devices. These devices shall be certified as crashworthy by crash testing, crash testing of similar devices, or years of demonstrable safe performance. Category 1 temporary traffic control devices include traffic cones, plastic drums, portable delineators, and channelizers. If requested by the Engineer, the Contractor shall provide written self-certification for crashworthiness of Category 1 temporary traffic control devices at least 5 business days before beginning any work using the devices or within 2 business days after the request if the devices are already in use. Self-certification shall be provided by the manufacturer or Contractor and shall include the following:

- A. Date,
- B. Federal Aid number (if applicable),

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- C. Contract number, district, county, route and post mile of project limits,
- D. Company name of certifying vendor, street address, city, state and zip code,
- E. Printed name, signature and title of certifying person; and
- F. Category 1 temporary traffic control devices that will be used on the project.

The Contractor may obtain a standard form for self-certification from the Engineer.

Category 2 temporary traffic control devices are defined as small and lightweight (less than 100 pounds) devices that are not expected to produce significant vehicular velocity change, but may cause potential harm to impacting vehicles. Category 2 temporary traffic control devices include barricades and portable sign supports.

Category 2 temporary traffic control devices shall be on the Federal Highway Administration's (FHWA) list of Acceptable Crashworthy Category 2 Hardware for Work Zones. This list is maintained by FHWA and can be located at:

http://safety.fhwa.dot.gov/roadway_dept/road_hardware/listing.cfm?code=workzone

The Department also maintains this list at:

<http://www.dot.ca.gov/hq/traffops/signtech/signdel/pdf/Category2.pdf>

Category 2 temporary traffic control devices that have not received FHWA acceptance shall not be used. Category 2 temporary traffic control devices in use that have received FHWA acceptance shall be labeled with the FHWA acceptance letter number and the name of the manufacturer. The label shall be readable and permanently affixed by the manufacturer. Category 2 temporary traffic control devices without a label shall not be used.

If requested by the Engineer, the Contractor shall provide a written list of Category 2 temporary traffic control devices to be used on the project at least 5 business days before beginning any work using the devices or within 2 business days after the request if the devices are already in use.

Category 3 temporary traffic control devices consist of temporary traffic-handling equipment and devices that weigh 100 pounds or more and are expected to produce significant vehicular velocity change to impacting vehicles. Temporary traffic-handling equipment and devices include crash cushions, truck-mounted attenuators, temporary railing, temporary barrier, and end treatments for temporary railing and barrier.

Type III barricades may be used as sign supports if the barricades have been successfully crash tested, meeting the NCHRP Report 350 criteria, as one unit with a construction area sign attached.

Category 3 temporary traffic control devices shall be shown on the plans or on the Department's Highway Safety Features list. This list is maintained by the Division of Engineering Services and can be found at:

http://www.dot.ca.gov/hq/esc/approved_products_list/

Category 3 temporary traffic control devices that are not shown on the plans or not listed on the Department's Highway Safety Features list shall not be used.

Full compensation for providing self-certification for crashworthiness of Category 1 temporary traffic control devices and for providing a list of Category 2 temporary traffic control devices used on the project shall be considered as included in the prices paid for the various items of work requiring the use of the Category 1 or Category 2 temporary traffic control devices and no additional compensation will be allowed therefor.

10-1.11 CONSTRUCTION AREA SIGNS

Construction area signs for temporary traffic control shall be furnished, installed, maintained, and removed when no longer required in conformance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Attention is directed to "Furnish Sign" of these special provisions.

Attention is directed to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. Type II retroreflective sheeting shall not be used on construction area sign panels. Type III, IV, VII, VIII, or IX retroreflective sheeting shall be used for stationary mounted construction area sign panels.

Unless otherwise shown on the plans or specified in these special provisions, the color of construction area warning and guide signs shall have black legend and border on orange background, except W10-1 or W47(CA) (Highway-Rail Grade Crossing Advance Warning) sign shall have black legend and border on yellow background.

Orange background on construction area signs shall be fluorescent orange.

Repair to construction area sign panels will not be allowed, except when approved by the Engineer. At nighttime under vehicular headlight illumination, sign panels that exhibit irregular luminance, shadowing or dark blotches shall be immediately replaced at the Contractor's expense.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least 2 business days, but not more than 14 days, prior to commencing excavation for construction area sign posts. The regional notification centers include, but are not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert	811

Excavations required to install construction area signs shall be performed by hand methods without the use of power equipment, except that power equipment may be used if it is

determined there are no utility facilities in the area of the proposed post holes. The post hole diameter, if backfilled with portland cement concrete, shall be at least 4 inches greater than the longer dimension of the post cross section.

Construction area signs placed within 15 feet from the edge of the travel way shall be mounted on stationary mounted sign supports as specified in "Construction Area Traffic Control Devices" of these special provisions.

The Contractor shall maintain accurate information on construction area signs. Signs that are no longer required shall be immediately covered or removed. Signs that convey inaccurate information shall be immediately replaced or the information shall be corrected. Covers shall be replaced when they no longer cover the signs properly. The Contractor shall immediately restore to the original position and location any sign that is displaced or overturned, from any cause, during the progress of work.

10-1.12 MAINTAINING TRAFFIC

Maintaining traffic shall conform to the provisions in Sections 7-1.08, "Public Convenience," Section 7-1.09, "Public Safety," and Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Closure is defined as the closure of a traffic lane or lanes, including shoulder, ramp or connector lanes, within a single traffic control system.

Attention is directed to "Cooperation" of these special provisions regarding requirement for the Contractor to coordinate with and accommodate other bridge contractors when preparing lane closure schedules.

Closures shall conform to the provisions in "Traffic Control System for Lane Closure" of these special provisions.

The Contractor shall notify the Toll Collection Lieutenant of the Contractor's intent to begin work at least 5 days before work is begun. The Contractor shall cooperate with the Toll Collection Lieutenant relative to any lane closures, toll booth closures and handling traffic through the area, and shall make arrangements relative to keeping the working area clear of parked vehicles.

Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, November 11th, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday.

When work vehicles or equipment are parked within 6 feet of a traffic lane to perform active construction, the shoulder area shall be closed.

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If minor deviations from the lane requirement charts are required, a written request shall be submitted to the Engineer at least 15 days before the proposed date of the closure. The Engineer may approve the deviations if there is no significant increase in the cost to the State and if the work can be expedited and better serve the public traffic.

Chart No. 1																											
Freeway/Expressway Lane Requirements																											
County: Contra Costa								Route/Direction: Highway 160/Eastbound										PM: 0.0/1.0									
Closure Limits: Highway 160, approaching the Antioch Toll Plaza																											
FROM HOUR TO HOUR		24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays		1	1	1	1	1																		1	1		
Fridays		1	1	1	1	1																					
Saturdays		1	1	1	1	1	1	1	1																1		
Sundays		1	1	1	1	1	1	1	1																1		
Legend:																											
1		Provide at a minimum one through freeway lane open in direction of travel																									
		Work permitted within project right of way where shoulder or lane closure is not required.																									
REMARKS:																											
1. Number of lanes to be open in direction of travel, are based on existing demand. It is assumed that one lane is required to be open in direction of travel for a demand of 1,200 vehicles per hour.																											
2. This lane closure chart shall only be used for construction work, on the approach leading to the Antioch Toll Plaza.																											

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Chart No. 2																										
Freeway/Expressway Lane Requirements																										
County: Contra Costa					Route/Direction: Interstate 80/Eastbound										PM: 13.1/14.1											
Closure Limits: Interstate 80, approaching the Carquinez Toll Plaza																										
FROM HOUR TO HOUR		24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays		2	2	2	2	2																		2	2	
Fridays		2	2	2	2	2																		2	2	
Saturdays		2	2	2	2	2	2	2																2	2	
Sundays		2	2	2	2	2	2	2																2	2	
Legend:																										
2		Provide at a minimum two through freeway lanes open in direction of travel																								
		Work permitted within project right of way where shoulder or lane closure is not required.																								
REMARKS:																										
1. Number of lanes to be open in direction of travel, are based on existing demand. It is assumed that one lane is required to be open in direction of travel for a demand of 1,200 vehicles per hour.																										
2. This lane closure chart shall only be used for construction work, on the approach leading to the Carquinez Toll Plaza.																										

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Chart No. 3																														
Freeway/Expressway Lane Requirements																														
County: Alameda						Route/Direction: Highway 84/Westbound										PM: 1.8/3.0														
Closure Limits: Highway 84, approaching the Dumbarton Toll Plaza																														
FROM HOUR TO HOUR						24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays						2	2	2	2	2																		2	2	
Fridays						2	2	2	2	2																		2	2	
Saturdays						2	2	2	2	2	2																	2	2	
Sundays						2	2	2	2	2	2																	2	2	
Legend:																														
<div>2</div>						Provide at a minimum two through freeway lanes open in direction of travel																								
<div></div>						Work permitted within project right of way where shoulder or lane closure is not required.																								
REMARKS:																														
1. Number of lanes to be open in direction of travel, are based on existing demand. It is assumed that one lane is required to be open in direction of travel for a demand of 1,200 vehicles per hour.																														
2. This lane closure chart shall only be used for construction work, on the approach leading to the Dumbarton Toll Plaza.																														

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Chart No. 4																										
Freeway/Expressway Lane Requirements																										
County: Alameda					Route/Direction: Interstate 580/Eastbound										PM: 5.6/6.2											
Closure Limits: Interstate 580, approaching the Richmond – San Rafael Toll Plaza																										
FROM HOUR TO HOUR		24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays		2	2	2	2	2																		2	2	
Fridays		2	2	2	2	2																		2	2	
Saturdays		2	2	2	2	2	2																	2	2	
Sundays		2	2	2	2	2	2																	2	2	
Legend:																										
2		Provide at a minimum two through freeway lanes open in direction of travel																								
		Work permitted within project right of way where shoulder or lane closure is not required.																								
REMARKS:																										
1. Number of lanes to be open in direction of travel, are based on existing demand. It is assumed that one lane is required to be open in direction of travel for a demand of 1,200 vehicles per hour.																										
2. This lane closure chart shall only be used for construction work, on the approach leading to the Richmond – San Rafael Toll Plaza.																										

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Chart No. 5																																							
Freeway/Expressway Lane Requirements																																							
County: Alameda														Route/Direction: Interstate 80/Westbound										PM: 1.8/3.0															
Closure Limits: Interstate 80, approaching the San Francisco – Oakland Toll Plaza																																							
FROM HOUR TO HOUR														24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays														4	4	4	4																					4	
Fridays														4	4	4	4																					4	
Saturdays														4	4	4	4	4	4																				4
Sundays														4	4	4	4	4	4																				4
Legend:																																							
4				Provide at a minimum four through freeway lanes open in direction of travel																																			
				Work permitted within project right of way where shoulder or lane closure is not required.																																			
REMARKS:																																							
1. Number of lanes to be open in direction of travel, are based on existing demand. It is assumed that one lane is required to be open in direction of travel for a demand of 1,200 vehicles per hour.																																							
2. This lane closure chart shall only be used for construction work, on the approach leading to the San Francisco – Oakland Toll Plaza.																																							

<p style="text-align: center;">Chart No. 6 Freeway/Expressway Lane Requirements</p>
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[illegible]

Legend:

2	Provide at a minimum two through freeway lanes open in direction of travel
	Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

1. Number of lanes to be open in direction of travel, are based on existing demand. It is assumed that one lane is required to be open in direction of travel for a demand of 1,200 vehicles per hour.
2. This lane closure chart shall only be used for construction work, on the approach leading to the San Mateo – Hayward Toll Plaza.

Chart No. 7
Multilane Lane Requirements

Location: Antioch Bridge Toll Plaza (Toll Booths No. 1 thru 3)														Direction: Eastbound												
	a.m.											p.m.														
	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays	1	1	1	1	1	1																1	1	1		
Fridays	1	1	1	1	1	1																1	1	1		
Saturdays	1	1	1	1	1	1	1	1													1	1	1	1		
Sundays	1	1	1	1	1	1	1	1													1	1	1	1		

Legend:

1	Toll booths open in direction of travel
	No toll booths closure allowed

REMARKS:

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Chart No. 8 Multilane Lane Requirements																										
Location: Carquinez Bridge Toll Plaza (Toll Booths No. 1 thru 12)															Direction: Eastbound											
	a.m.												p.m.													
	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays	5	5	5	5	5	5																5	5	5		
Fridays	5	5	5	5	5	5																5	5	5		
Saturdays	5	5	5	5	5	5	5	5														5	5	5		
Sundays	5	5	5	5	5	5	5	5														5	5	5		
Legend:																										
5 Toll booths open in direction of travel																										
No toll booths closure allowed																										
REMARKS:																										

Chart No. 9 Multilane Lane Requirements																										
Location: Dumbarton Bridge Toll Plaza (Toll Booths No. 1 thru 7)																Direction: Westbound										
	a.m.												p.m.													
	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays	3	3	3	3	3	3																3	3	3		
Fridays	3	3	3	3	3	3																3	3	3		
Saturdays	3	3	3	3	3	3	3	3														3	3	3		
Sundays	3	3	3	3	3	3	3	3														3	3	3		
Legend:																										
3 Toll booths open in direction of travel																										
No toll booths closure allowed																										
REMARKS:																										

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Chart No. 10																										
Multilane Lane Requirements																										
Location: Richmond – San Rafael Bridge Toll Plaza (Toll Booths No. 1 thru 7)																							Direction:			
Eastbound																										
	a.m.											p.m.														
	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays	3	3	3	3	3	3																3	3	3		
Fridays	3	3	3	3	3	3																3	3	3		
Saturdays	3	3	3	3	3	3	3	3														3	3	3		
Sundays	3	3	3	3	3	3	3	3														3	3	3		
Legend:																										
3 Toll booths open in direction of travel																										
No toll booths closure allowed																										
REMARKS:																										

Chart No. 11 Multilane Lane Requirements																									
Location: San Francisco – Oakland Bridge Toll Plaza (Toll Booths No. 1 thru 17)																									
Direction: Westbound																									
	a.m.												p.m.												
FROM HOUR TO HOUR	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	10	10	10	10	10	10	10																10	10	10
Fridays	10	10	10	10	10	10	10																10	10	10
Saturdays	10	10	10	10	10	10	10	10															10	10	10
Sundays	10	10	10	10	10	10	10	10															10	10	10
Legend:																									
10 Toll booths open in direction of travel																									
No toll booths closure allowed																									
REMARKS:																									

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Chart No. 12 Multilane Lane Requirements																									
Location: San Mateo - Hayward Bridge Toll Plaza (Toll Booths No. 1 thru 10) Westbound																							Direction:		
	a.m.												p.m.												
FROM HOUR TO HOUR	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	5	5	5	5	5	5																5	5	5	
Fridays	5	5	5	5	5	5																5	5	5	
Saturdays	5	5	5	5	5	5	5	5														5	5	5	
Sundays	5	5	5	5	5	5	5	5														5	5	5	
Legend:																									
5 Toll booths open in direction of travel																									
No toll booths closure allowed																									
REMARKS:																									

CLOSURE SCHEDULE

A written schedule of planned closures for the next week period, defined as Sunday noon through the following Sunday noon, shall be submitted by noon each Monday. A written schedule shall be submitted not less than 25 days and not more than 125 days before the anticipated start of any operation that will:

1. Reduce horizontal clearances, traveled way, including shoulders, to two lanes or less due to such operations as temporary barrier placement and paving
2. Reduce the vertical clearances available to the public due to such operations as pavement overlay, overhead sign installation, or falsework or girder erection

The Closure Schedule shall show the locations and times of the proposed closures. The Closure Schedule request forms furnished by the Engineer shall be used. Closure Schedules submitted to the Engineer with incomplete or inaccurate information will be rejected and returned for correction and resubmittal. The Contractor will be notified of disapproved closures or closures that require coordination with other parties as a condition of approval.

Closure Schedule amendments, including adding additional closures, shall be submitted by noon to the Engineer, in writing, at least 3 business days in advance of a planned closure. Approval of Closure Schedule amendments will be at the discretion of the Engineer.

The Engineer shall be notified of cancelled closures 2 business days before the date of closure.

Closures that are cancelled due to unsuitable weather may be rescheduled at the discretion of the Engineer.

CONTINGENCY PLAN

A detailed contingency plan shall be prepared for reopening closures to public traffic. If required by "Beginning of Work, Time of Completion and Liquidated Damages" of these special provisions, the contingency plan shall be submitted to the Engineer before work at the job site begins. Otherwise, the contingency plan shall be submitted to the Engineer within one business day of the Engineer's request.

LATE REOPENING OF CLOSURES

If a closure is not reopened to public traffic by the specified time, work shall be suspended in conformance with the provisions in Section 8-1.05, "Temporary Suspension of Work," of the Standard Specifications. No further closures are to be made until the Engineer has accepted a work plan, submitted by the Contractor, that will insure that future closures will be reopened to public traffic at the specified time. The Engineer will have 2 business days to accept or reject the Contractor's proposed work plan. The Contractor will not be entitled to compensation for the suspension of work resulting from the late reopening of closures.

For each 10-minute interval, or fraction thereof past the time specified to reopen the closure, the Department will deduct the amount per interval shown below from moneys due or that may become due the Contractor under the contract. Damages are limited to 5 percent of project cost per occurrence and will not be assessed when the Engineer requests that the closure remain in place beyond the scheduled pickup time.

Type of Facility	Route or Segment	Period	Damages/interval (\$)
Mainline	All	1st half hour	\$1,000 / 10 minutes
		2nd half hour	\$1,000 / 10 minutes
		2nd hour and beyond	\$1,000 / 10 minutes
Connector	All	1st half hour	\$1,000 / 10 minutes
		2nd half hour	\$1,000 / 10 minutes
		2nd hour and beyond	\$ 1,000 / 10 minutes
Toll Booths	All	1st half hour	\$1,000 / 10 minutes
		2nd half hour	\$1,000 / 10 minutes
		2nd hour and beyond	\$ 1,000 / 10 minutes

COMPENSATION

The Engineer shall be notified of delays in the Contractor's operations due to the following conditions, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of those conditions, and the Contractor's loss due to that delay could not have been avoided by rescheduling the affected closure or by judicious handling of forces, equipment and plant, the delay will be considered a right of way delay and will be compensated in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications:

1. The Contractor's proposed Closure Schedule is denied and his planned closures are within the time frame allowed for closures in "Maintaining Traffic" of these special provisions, except that the Contractor will not be entitled to compensation for amendments to the Closure Schedule that are not approved.

2. The Contractor is denied a confirmed closure.

Should the Engineer direct the Contractor to remove a closure before the time designated in the approved Closure Schedule, delay to the Contractor's schedule due to removal of the closure will be considered a right of way delay and compensation for the delay will be determined in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

10-1.13 Not Used

10-1.14 IMPACT ATTENUATOR VEHICLE

GENERAL

Summary

Work includes protecting traffic and workers by using impact attenuator vehicle as a shadow vehicle when placing and removing components of a traffic control system, and when performing a moving lane closure.

Comply with Section 12-3.03, "Flashing Arrow Signs," of the Standard Specifications.

Impact attenuator vehicle must comply with the following test levels under National Cooperative Highway Research Program 350:

1. Test level 3 for pre-construction posted speed limit of 50 mph or more
2. Test levels 2 or 3 for pre-construction posted speed limit of 45 mph or less

Comply with the attenuator manufacturer's recommendations for:

1. Support truck
2. Trailer-mounted operation
3. Truck-mounted operation

Definitions

Impact attenuator vehicle: Support truck towing a deployed attenuator mounted to a trailer or support truck with a deployed attenuator mounted to the support truck.

Submittals

Upon request, submit a Certificate of Compliance for attenuator to the Engineer under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

Quality Control and Assurance

Attenuator must be a brand listed on the Department's pre-approved list at:

http://www.dot.ca.gov/hq/esc/approved_products_list/HighwaySafe.htm

MATERIALS

The combined weight of the support truck and the attenuator must be at least 19,800 pounds, except the weight of the support truck must not be less than 16,100 pounds or greater than 26,400 pounds.

If using the Trinity MPS-350 truck-mounted attenuator, the support truck must not have any underneath fuel tank mounted within 10'-6" of the rear of the support truck.

Each impact attenuator vehicle must:

1. Have standard brake lights, taillights, sidelights, and turn signals
2. Have an inverted "V" chevron pattern placed across the entire rear of the attenuator composed of alternating 4 inch wide non-reflective black stripes and 4 inch wide yellow retroreflective stripes sloping at 45 degrees
3. Have a Type II flashing arrow sign
4. Have a flashing or rotating amber light
5. Have an operable 2-way communication system for maintaining contact with workers

CONSTRUCTION

Use impact attenuator vehicle to follow behind equipment and workers who are placing and removing components of a traffic control system for a lane closure or a ramp closure. Flashing arrow sign must be operating in arrow mode during this activity. Follow at a distance to prevent intrusion into the workspace from passing traffic.

After placing components of a traffic control system for a lane closure or a ramp closure you may use impact attenuator vehicle in a closed lane and in advance of a work area to protect traffic and workers.

Secure objects including equipment, tools and ballast on impact attenuator vehicle to prevent loosening upon impact by an errant vehicle.

Do not use a damaged attenuator in the work. Replace, at your expense, an attenuator damaged from an impact during work.

MEASUREMENT AND PAYMENT

Full compensation for furnishing and operating impact attenuator vehicle is included in the contract lump sum price paid for traffic control system, and no additional compensation will be allowed therefor.

10-1.15 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

A traffic control system shall consist of closing traffic lanes and ramps in conformance with the details shown on the plans, the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under "Maintaining Traffic" and "Construction Area Signs" of these special provisions, and these special provisions.

The provisions in this section will not relieve the Contractor from the responsibility to provide additional devices or take measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications.

Each vehicle used to place, maintain and remove components of a traffic control system on multilane highways shall be equipped with a Type II flashing arrow sign which shall be in

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operation when the vehicle is being used for placing, maintaining or removing components. Vehicles equipped with Type II flashing arrow sign not involved in placing, maintaining or removing components when operated within a stationary lane closure shall only display the caution display mode. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion. The flashing arrow sign shown on the plans shall not be used on vehicles which are being used to place, maintain and remove components of a traffic control system and shall be in place before a lane closure requiring its use is completed.

The 1,700-foot section of lane closure, shown along lane lines between the 1,000-foot lane closure tapers on the plans entitled "Traffic Control System for Lane Closures on Freeways and Expressways" and "Traffic Control System for Lane and Complete Closures on Freeways and Expressways" shall not be used.

The traffic cones shown to be placed transversely across closed traffic lanes and shoulders on the plans entitled "Traffic Control System for Lane Closures on Freeways and Expressways" and "Traffic Control System for Lane and Complete Closures on Freeways and Expressways" shall not be placed.

If components in the traffic control system are displaced or cease to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair the components to the original condition or replace the components and shall restore the components to the original location.

When lane and ramp closures are made for work periods only, at the end of each work period, components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations designated by the Engineer within the limits of the highway right of way.

The contract lump sum price paid for traffic control system shall include full compensation for furnishing all labor, materials (including signs), tools, equipment, and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of the traffic control system shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications shall not apply to the item of traffic control system. Adjustments in compensation for traffic control system will be made only for increased or decreased traffic control system required by changes ordered by the Engineer and will be made on the basis of the cost of the increased or decreased traffic control necessary. The adjustment will be made on a force account basis as provided in Section 9-1.03, "Force Account Payment," of the Standard Specifications for increased work and estimated on the same basis in the case of decreased work.

Traffic control system required by work which is classed as extra work, as provided in Section 4-1.03D of the Standard Specifications, will be paid for as a part of the extra work.

10-1.16 PORTABLE CHANGEABLE MESSAGE SIGNS

GENERAL

Summary

Work includes furnishing, placing, operating, maintaining, and removing portable changeable message signs.

Comply with Section 12-3.12 "Portable Changeable Message Signs," of the Standard Specifications.

Definitions

Useable shoulder area: Paved or unpaved contiguous surface adjacent to the traveled way with:

1. Sufficient weight bearing capacity to support portable changeable message sign
2. Slope not greater than 6:1 (horizontal:vertical)

Submittals

Upon request, submit a Certificate of Compliance for each portable changeable message sign under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.

Quality Control and Assurance

Comply with the manufacturer's operating instructions for portable changeable message sign.

Approaching drivers must be able to read the entire message for all phases at least twice at the posted speed limit before passing portable changeable message sign. You may use more than 1 portable changeable message sign to meet this requirement.

Only display the message shown on the plans or ordered by the Engineer or specified in these special provisions.

MATERIALS

The text of the message displayed on portable changeable message sign must not scroll, or travel horizontally or vertically across the face of the message panel.

CONSTRUCTION

Continuously repeat the entire message in no more than 2 phases of at least 3 seconds per phase.

If useable shoulder area is at least 15 feet wide, the displayed message on portable changeable message sign must be minimum 18-inch character height. If useable shoulder area is less than 15 feet wide, you may use a smaller message panel with minimum 12-inch character height to prevent encroachment in the traveled way.

You or your representative must be available by cell phone for operations that require portable changeable message signs. Give the Engineer your cell phone number. When the Engineer contacts you, immediately comply with the Engineer's request to modify the displayed message.

Start displaying the message on portable changeable message sign 30 minutes before closing the lane.

Place portable changeable message sign in advance of the first warning sign for:

1. Each stationary lane closure
2. Each ramp closure
3. Each connector closure
4. Each shoulder closure

Place portable changeable message sign as far from the traveled way as practicable where it is legible to traffic and does not encroach on the traveled way. Place portable changeable sign before or at the crest of vertical roadway curvature where it is visible to approaching traffic. Avoid placing portable changeable message sign within or immediately after horizontal roadway curvature. Where possible, place portable changeable message sign behind guardrail or temporary railing (Type K).

Except where placed behind guardrail or temporary railing (Type K) use traffic control for shoulder closure to delineate portable changeable message sign.
Remove portable changeable message sign when not in use.

MEASUREMENT AND PAYMENT

Full compensation for portable changeable message signs, including furnishing, placing, operating, modifying messages, maintaining, transporting from location to location, removing, and repairing or replacing defective or damaged portable changeable message signs is included in the contract lump sum price paid for traffic control system and no separate payment will be made therefor.

SECTION 10-2. STEEL STRUCTURES

10-2.1 STEEL STRUCTURES

Construction of steel structures shall conform to the provisions in Section 55, "Steel Structures," of the Standard Specifications and these special provisions.

Attention is directed to "Welding" in Section 8, "Materials," of these special provisions.

ROTATIONAL CAPACITY TESTING PRIOR TO SHIPMENT TO JOB SITE

Rotational capacity tests shall be performed on all lots of high-strength fastener assemblies prior to shipment of these lots to the project site. Zinc-coated assemblies shall be tested after all fabrication, coating, and lubrication of components has been completed. One hardened washer shall be used under each nut for the tests.

The requirements of this section do not apply to high-strength cap screws or high-strength bolts used for slip base plates.

Each combination of bolt production lot, nut lot, and washer lot shall be tested as an assembly.

A rotational capacity lot number shall be assigned to each combination of lots tested. Each shipping unit of fastener assemblies shall be plainly marked with the rotational capacity lot number.

Two fastener assemblies from each rotational capacity lot shall be tested.

The following equipment, procedure, and acceptance criteria shall be used to perform rotational capacity tests on and determine acceptance of long bolts. Fasteners are considered to be long bolts when full nut thread engagement can be achieved when installed in a bolt tension measuring device:

A. Long Bolt Test Equipment:

1. Calibrated bolt tension measuring device with adequate tension capacity for the bolts being tested.
2. Calibrated dial or digital torque wrench. Other suitable tools will be required for performing Steps 7 and 8 of the Long Bolt Test Procedure. A torque multiplier may be required for large diameter bolts.
3. Spacer washers or bushings. When spacer washers or bushings are required, they shall have the same inside diameter and equal or larger outside diameter as the appropriate hardened washers conforming to the requirements in ASTM Designation: F 436.
4. Steel beam or member, such as a girder flange or cross frame, to which the bolt tension measuring device will be attached. The device shall be accessible from the ground.

B Long Bolt Test Procedure:

1. Measure the bolt length. The bolt length is defined as the distance from the end of the threaded portion of the shank to the underside of the bolt head.
2. Install the nut on the bolt so that 3 to 5 full threads of the bolt are located between the bearing face of the nut and the underside of the bolt head. Measure and record the thread stickout of the bolt. Thread stickout is determined by measuring the distance from the outer face of the nut to the end of the threaded portion of the shank.
3. Insert the bolt into the bolt tension measuring device and install the required number of washers, and additional spacers as needed, directly beneath the nut to produce the thread stickout measured in Step 2 of this procedure.
4. Tighten the nut using a hand wrench to a snug-tight condition. The snug tension shall not be less than the Table A value but may exceed the Table A value by a maximum of 2 kips.

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Table A

High-Strength Fastener Assembly Tension Values to Approximate Snug-Tight Condition	
Bolt Diameter (inches)	Snug Tension (kips)
1/2	1
5/8	2
3/4	3
7/8	4
1	5
1-1/8	6
1-1/4	7
1-3/8	9
1-1/2	10

5. Match-mark the assembly by placing a heavy reference start line on the face plate of the bolt tension measuring device which aligns with (1) a mark placed on one corner of the nut and (2) a radial line placed across the flat on the end of the bolt or on the exposed portions of the threads of tension control bolts. Place an additional mark on the outside of the socket that overlays the mark on the nut corner such that this mark will be visible while turning the nut. Make an additional mark on the face plate, either 2/3 of a turn, one turn, or 1-1/3 turn clockwise from the heavy reference start line, depending on the bolt length being tested as shown in Table B.

Table B

Required Nut Rotation for Rotational Capacity Tests ^{(a) (b)}	
Bolt Length (measured in Step 1)	Required Rotation (turn)
4 bolt diameters or less	2/3
Greater than 4 bolt diameters but no more than 8 bolt diameters	1
Greater than 8 bolt diameters, but no more than 12 bolt diameters ^(c)	1-1/3

(a) Nut rotation is relative to bolt, regardless of the element (nut or bolt) being turned. For bolts installed by 1/2 turn and less, the tolerance shall be plus or minus 30 degrees; for bolts installed by 2/3 turn and more, the tolerance shall be plus or minus 45 degrees.

(b) Applicable only to connections in which all material within grip of the bolt is steel.

(c) When bolt length exceeds 12 diameters, the required rotation shall be determined by actual tests in a suitable tension device simulating the actual conditions.

6. Turn the nut to achieve the applicable minimum bolt tension value listed in Table C. After reaching this tension, record the moving torque, in foot-pounds, required to turn the nut, and also record the corresponding bolt tension value in pounds. Torque shall be measured with the nut in motion. Calculate the value, T, where $T = [(\text{the measured tension in pounds}) \times (\text{the bolt diameter in inches}) / 48]$.

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Table C

Minimum Tension Values for High-Strength Fastener Assemblies	
Bolt Diameter (inches)	Minimum Tension (kips)
1/2	12
5/8	19
3/4	28
7/8	39
1	51
1-1/8	56
1-1/4	71
1-3/8	85
1-1/2	103

7. Turn the nut further to increase bolt tension until the rotation listed in Table B is reached. The rotation is measured from the heavy reference line made on the face plate after the bolt was snug-tight. Record this bolt tension.
8. Loosen and remove the nut and examine the threads on both the nut and bolt.

C. Long Bolt Acceptance Criteria:

1. An assembly shall pass the following requirements to be acceptable: (1) the measured moving torque (Step 6) shall be less than or equal to the calculated value, T (Step 6), (2) the bolt tension measured in Step 7 shall be greater than or equal to the applicable turn test tension value listed in Table D, (3) the nut shall be able to be removed from the bolt without signs of thread stripping or galling after the required rotation in Step 7 has been achieved, (4) the bolt does not shear from torsion or fail during the test, and (5) the assembly does not seize before the final rotation in Step 7 is reached. Elongation of the bolt in the threaded region between the bearing face of the nut and the underside of the bolt head is expected and will not be considered a failure. Both fastener assemblies tested from one rotational capacity lot shall pass for the rotational capacity lot to be acceptable.

Table D

Turn Test Tension Values	
Bolt Diameter (inches)	Turn Test Tension (kips)
1/2	14
5/8	22
3/4	32
7/8	45
1	59
1-1/8	64
1-1/4	82
1-3/8	98
1-1/2	118

The following equipment, procedure, and acceptance criteria shall be used to perform rotational capacity tests on and determine acceptance of short bolts. Fasteners are considered to be short bolts when full nut thread engagement cannot be achieved when installed in a bolt tension measuring device:

A. Short Bolt Test Equipment:

1. Calibrated dial or digital torque wrench. Other suitable tools will be required for performing Steps 7 and 8 of the Short Bolt Test Procedure. A torque multiplier may be required for large diameter bolts.
2. Spud wrench or equivalent.
3. Spacer washers or bushings. When spacer washers or bushings are required, they shall have the same inside diameter and equal or larger outside diameter as the appropriate hardened washers conforming to the requirements in ASTM Designation: F 436.
4. Steel plate or girder with a hole to install bolt. The hole size shall be 1/16 inch greater than the nominal diameter of the bolt to be tested. The grip length, including any plates, washers, and additional spacers as needed, shall provide the proper number of threads within the grip, as required in Step 2 of the Short Bolt Test Procedure.

B. Short Bolt Test Procedure:

1. Measure the bolt length. The bolt length is defined as the distance from the end of the threaded portion of the shank to the underside of the bolt head.
2. Install the nut on the bolt so that 3 to 5 full threads of the bolt are located between the bearing face of the nut and the underside of the bolt head. Measure and record the thread stickout of the bolt. Thread stickout is determined by measuring the distance from the outer face of the nut to the end of the threaded portion of the shank.
3. Install the bolt into a hole on the plate or girder and install the required number of washers and additional spacers as needed between the bearing face of the nut and the underside of the bolt head to produce the thread stickout measured in Step 2 of this procedure.
4. Tighten the nut using a hand wrench to a snug-tight condition. The snug condition shall be the full manual effort applied to the end of a 12-inch long wrench. This applied torque shall not exceed 20 percent of the maximum allowable torque in Table E.

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Table E

Maximum Allowable Torque for High-Strength Fastener Assemblies	
Bolt Diameter (inches)	Torque (ft-lb)
1/2	145
5/8	285
3/4	500
7/8	820
1	1220
1-1/8	1500
1-1/4	2130
1-3/8	2800
1-1/2	3700

5. Match-mark the assembly by placing a heavy reference start line on the steel plate or girder which aligns with (1) a mark placed on one corner of the nut and (2) a radial line placed across the flat on the end of the bolt or on the exposed portions of the threads of tension control bolts. Place an additional mark on the outside of the socket that overlays the mark on the nut corner such that this mark will be visible while turning the nut. Make 2 additional small marks on the steel plate or girder, one 1/3 of a turn and one 2/3 of a turn clockwise from the heavy reference start line on the steel plate or girder.
6. Using the torque wrench, tighten the nut to the rotation value listed in Table F. The rotation is measured from the heavy reference line described in Step 5 made after the bolt was snug-tight. A second wrench shall be used to prevent rotation of the bolt head during tightening. Measure and record the moving torque after this rotation has been reached. The torque shall be measured with the nut in motion.

Table F

Nut Rotation Required for Turn-of-Nut Installation ^{(a), (b)}	
Bolt Length (measured in Step 1)	Required Rotation (turn)
4 bolt diameters or less	1/3

(a) Nut rotation is relative to bolt, regardless of the element (nut or bolt) being turned. For bolts installed by 1/2 turn and less, the tolerance shall be plus or minus 30 degrees.

(b) Applicable only to connections in which all material within grip of the bolt is steel.

7. Tighten the nut further to the 2/3-turn mark as indicated in Table G. The rotation is measured from the heavy reference start line made on the plate or girder when the bolt was snug-tight. Verify that the radial line on the bolt end or on the exposed portions of the threads of tension control bolts is still in alignment with the start line.

Table G

Required Nut Rotation for Rotational Capacity Test	
Bolt Length (measured in Step 1)	Required Rotation (turn)
4 bolt diameters or less	2/3

8. Loosen and remove the nut and examine the threads on both the nut and bolt.

C. Short Bolt Acceptance Criteria:

1. An assembly shall pass the following requirements to be acceptable: (1) the measured moving torque from Step 6 shall be less than or equal to the maximum allowable torque from Table E, (2) the nut shall be able to be removed from the bolt without signs of thread stripping or galling after the required rotation in Step 7 has been achieved, (3) the bolt does not shear from torsion or fail during the test, and (4) the assembly shall not seize before the final rotation in Step 7 is reached. Elongation of the bolt in the threaded region between the bearing face of the nut and the underside of the bolt head will not be considered a failure. Both fastener assemblies tested from one rotational capacity lot shall pass for the rotational capacity lot to be acceptable.

**INSTALLATION TENSION TESTING AND ROTATIONAL CAPACITY TESTING
AFTER ARRIVAL ON THE JOB SITE**

Installation tension tests and rotational capacity tests on high-strength fastener assemblies shall be performed by the Contractor prior to acceptance or installation and after arrival of the fastener assemblies on the project site. Installation tension tests and rotational capacity tests shall be performed at the job site, in the presence of the Engineer, on each rotational capacity lot of fastener assemblies.

The requirements of this section do not apply to high-strength cap screws or high-strength bolts used for slip base plates.

Installation tension tests shall be performed on 3 representative fastener assemblies in conformance with the provisions in Section 8, "Installation," of the RCSC Specification. For short bolts, Section 8.2, "Pretensioned Joints," of the RCSC Specification shall be replaced by the "Pre-Installation Testing Procedures," of the "Structural Bolting Handbook," published by the Steel Structures Technology Center, Incorporated.

The rotational capacity tests shall be performed in conformance with the requirements for rotational capacity tests in "Rotational Capacity Testing Prior to Shipment to Job Site" of these special provisions.

At the Contractor's expense, additional installation tension tests, tests required to determine job inspecting torque, and rotational capacity tests shall be performed by the Contractor on each rotational capacity lot, in the presence of the Engineer, if:

1. Any fastener is not used within 3 months after arrival on the job site,
2. Fasteners are improperly handled, stored, or subjected to inclement weather prior to final tightening,
3. Significant changes are noted in original surface condition of threads, washers, or nut lubricant, or

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4. The Contractor's required inspection is not performed within 48 hours after all fasteners in a joint have been tensioned.

Failure of a job-site installation tension test or a rotational capacity test will be cause for rejection of unused fasteners that are part of the rotational capacity lot.

When direct tension indicators are used, installation verification tests shall be performed in conformance with Appendix Section X1.4 of ASTM Designation: F 959, except that bolts shall be initially tensioned to a value 5 percent greater than the minimum required bolt tension.

SEALING

When zinc-coated tension control bolts are used, the sheared end of each fastener shall be completely sealed with non-silicone type sealing compound conforming to the provisions in Federal Specification TT-S-230, Type II. The sealant shall be gray in color and shall have a minimum thickness of 50 mils. The sealant shall be applied to a clean sheared surface on the same day that the splined end is sheared off.

WELDING

Table 2.2 of AWS D1.5 is superseded by the following table:

Base Metal Thickness of the Thicker Part Joined, inches	Minimum Effective Partial Joint Penetration Groove Weld Size*, inches
Over 1/4 to 1/2 inclusive	3/16
Over 1/2 to 3/4 inclusive	1/4
Over 3/4 to 1-1/2 inclusive	5/16
Over 1-1/2 to 2-1/4 inclusive	3/8
Over 2-1/4 to 6 inclusive	1/2
Over 6	5/8

* Except the weld size need not exceed the thickness of the thinner part

The requirement of conformance with AWS D1.5 shall not apply to work conforming to Section 56-1, "Overhead Sign Structures," or Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications.

10-2.2 OWNER-FURNISHED MATERIALS

BATA will furnish portions of the unassembled CMS support frame materials as indicated on the plans at a storage area near the toll plaza. The Contractor shall notify the Engineer not less than five (5) calendar days before Owner-furnished materials are to be picked up by the Contractor. The materials will be available for pick up no earlier than April 7, 2010.

The following materials will be furnished to the Contractor by BATA:

<u>Material (Steel)</u>	<u>Quantity (Ea)</u>	<u>Remarks</u>
TS6x4x1/4 11'-6"	<u>8</u>	3'-6" too long per design plans and modifications will be required by the

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		Contractor to conform to design plans.
3"Dia x 7'-6" Std Pipes	<u>8</u>	Seven of them already have plates welded at each end per design plans.
3/8"Connection plates	<u>24</u>	See design plans for details.

All materials listed above have been galvanized.

10-2.3 REMOVE CMS SUPPORT STRUCTURES

This work shall consist of removing portions of existing CMS support structures at toll booth facilities in accordance with the details shown on the plans and these special provisions.

The support structures to be removed are comprised of steel frames with welded and bolted connections and other miscellaneous features.

Removal shall be to the limits shown on the plans. Removal shall be done carefully to avoid damage to the portions to remain. Remaining portions that are damaged by the Contractor's operation shall be restored to original condition at the Contractor's expense.

10-2.4 INSTALL SIGN PANELS ON EXISTING STRUCTURES

CMS sign panels shall be installed on existing toll plaza canopy structures at the locations shown on the plans or where designated by the Engineer and in conformance with the provisions in Section 56-1.06, "Sign Panels and Fastening Hardware," of the Standard Specifications, the CMS Manufacturer specifications, and these special provisions.

Existing sign panels, as shown on the plans, shall be removed and salvaged or removed and disposed of as provided in Section 15, "Existing Highway Facilities," of the Standard Specifications.

Existing improvements that interfere with the new planned improvements shall be removed, salvaged, and reinstalled.

Structural steel framing shall conform to the requirements in "Steel Structures," elsewhere in these special provisions.

Metal studs shall be formed to channel shape, punched web, and knurled faces, conforming to ASTM Designation: A653, Grade 50. Studs shall be 16-gage minimum thickness. New cladding shall match existing cladding material properties and color.

Fasteners for metal studs shall be hot-dipped galvanized, self-drilling, self-tapping screws, or bolts, nuts and washers.

Metal studs shall be hot-dipped galvanized to conform to ASTM Designation: A653, G60.

Miscellaneous parts associated with the construction of metal studs, including, bracing, furring, plates, gussets, and bridging, shall be hot dipped galvanized to not less than 78 pounds per square foot.

Structural properties of metal studs and joists shall be computed in accordance with American Iron and Steel Institute (AISI), "Specification for Designing of Cold-Formed Steel Structural Members."

Before commencing fabrication of steel studs and cladding, the Contractor shall submit 2 sets of working drawings to the Engineer in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. Working drawings shall include framing members showing size and gage designations, number, type, location and spacing. Working drawings shall include supplemental strapping, bracing, splices, bridging, accessories, and details required for proper installation.

All existing and new CMS support framing shall be painted black in accordance with Section 59 "Painting," of the Standard Specifications.

The contract lump sum price paid for install CMS on existing structure shall include full compensation for furnishing all labor, materials (except CMS panels and hardware provided by CMS manufacturer), tools, equipment, and incidentals, and for doing all the work involved in installing CMS panels on existing structures including painting existing and new support framing, complete in place, including removing and salvaging existing EMS and sign panels, removing, salvaging and reinstalling existing improvements, and furnishing and installing supporting structural steel framing, as shown on the plans, as specified in the Standard Specifications and these special provisions, in compliance with CMS Manufacturer's specifications, and as directed by the Engineer.

SECTION 10-3. ELECTRICAL SYSTEMS

PROJECT DESCRIPTION AND SCOPE OF WORK

This section describes the requirements for providing integration, communications and electrical system infrastructure expansion and modifications to support the installation of additional Changeable Message Sign (CMS) panels on top of the toll plaza canopy. As part of this effort existing Indicator Lights on lanes with new CMS panels will be modify to indicate RED, GREEN, and FLAHSING AMBER. In addition, the indicator light control system for all other lanes will be modified to allow manipulation of the indicator light status for all toll lanes from the Sergeant's Room. Limited manipulation will be given to the tollbooth operator for the purposes of changing the RED and GREEN indicator light status. A master override switch will be installed inside the CMS cabinets.

This project includes the procurement, installation, integration, testing and documentation of conduit, junction boxes, fiber optic cabling, fiber optic termination, fiber optic patch panels, new CMS panels (installation and integration only), new CMS cabinets, new CMS equipment racks, upgrades to existing CMS cabinets, new CMS controllers, CMS communications and electrical cabling, replacement of existing CMS controllers, grounding and bonding, new and modified

electrical panelboards, CMS communications network (Ethernet switch) equipment, IP addressable power strips, indicator light control equipment including dual color LED bulb replacements, breakers, relays, transformers, LED status lights and control panel, and other work, components and materials as specified herein, and Plans.

The Contractor shall provide all equipment/devices, materials, incidentals, test equipment, labor, and services necessary to deploy and commission the system equipment, infrastructure, components and materials that fully comply with these minimum Special Provisions and as shown in the Plans.

All components and associated work shall conform to the provisions and requirements in Section 86, "Signals, Lighting and Electrical Systems," of the 2006 Standard Specifications, the Plans; the 2006 Standard Plans; and these Special Provisions including all modifications, revisions and additions.

It is the Contractor's responsibility to provide in their bid proposal notification of any components, subsystems or design assumptions outlined in these Special Provisions and/or Plans that would prohibit the Contractor from being able to successfully provide, install, integrate and test the CMS System as shown on the Plans and specified herein within schedule.

Where reference is made to the Contractor, it shall mean the Contractor responsible for performing all of the work as defined in these Special Provisions and Plans. The Contractor shall provide all work as indicated in the following Scope of Work. All work will be within existing State right-of-way.

Where reference is made to the CMS Manufacturer, it shall mean the entity responsible for manufacturing and furnishing the CMS panels, CMS controllers and CMS communications cabling. The Contractor shall coordinate with BATA and work closely with the CMS Manufacturer (Vermac) for this project to pick-up, install, integrate and test the CMS panels, CMS communications cabling and CMS controllers to be made available by BATA to the Contractor which has already been procured by BATA for this project.

System Operations Description

The Contractor shall integrate all new CMS panels into the existing CMS communications network and indicator light control system upgrades for each of the following Bridge Plazas

Antioch

Carquinez

Dumbarton

Richmond-San Rafael

San Mateo-Hayward

San Francisco Oakland Bay Bridge

The Contractor shall be responsible to carefully review each of the Bridge Plaza plans, perform field reviews as needed and/or required as well as review of these Special Provisions to determine specific quantities and equipment and materials required for each project site.

All CMS panels are manufactured by Vermac and will be installed over designated toll lanes at each Toll Plaza as shown on the Plans. These panels are approximately 8-feet x 4-feet in size. At the San Francisco-Oakland Bay Bridge, in addition to these panels there will be three (3) larger panels (approximately 17-feet x 4-feet) installed as shown on the Plans. CMS controllers will be installed in either an existing or new CMS cabinet as shown on the Plans and communicate with their respective CMS panel through a CMS serial communications cable. All CMS controllers will be integrated into the existing Toll Plaza CMS communications network (Ethernet-fiber based system). Existing CMS workstations with upgraded control software will be utilized except for the Antioch Bridge site which will be provided with a new CMS workstation and software.

The Contractor shall coordinate with BATA to determine the CMS messages to be displayed under each indicator light condition (RED, GREEN, and FLASHING AMBER). Operationally when a lane barrier gate arm is down the CMS message for that lane will automatically be set to "Lane Closed". Once the barrier gate is raised (up), the Toll Sergeant or Lieutenant will have the capability to switch the Indicator Light for each lane to Red / Green / Flashing Amber from a bank of LED illuminated push button switches mounted on a Switch Console Panel in the Sergeant's Room. Likewise, the toll booth operator will have limited control and will have the capability to only switch the Indicator Light for his/her lane to RED/GREEN only.

LED illuminated push button switches on the Switch Console Panel will allow the Toll Sergeant or Lieutenant to see the current status of each lane. The Contractor shall be responsible to provide and install conduit from the CMS cabinet to each toll booth for installation and integration of indicator light booth cabling as shown on the Plans.

Examination of Project Plans, Special Provisions, and Sites

Contractor shall satisfy itself as to the type, character, quality, and quantities of work to be performed, materials to be furnished, and as to the requirements of this project as provided in the Contract documents, Special Provisions and Plans.

The Contractor shall perform a walk through of the project and work with the Engineer and ask questions to clarify and ensure a clear understanding of the project scope of work, responsibilities, and requirements prior to starting work on this work. Field visits to the toll plazas will be scheduled and provided at the request of the Contractor.

The submission of Contract bid revision shall be prima facie evidence that the Contractor has made such examination and coordination and is satisfied as to the existing site conditions, as-built conditions, to be encountered and has a clear understanding of scope of work and project requirements in order to successfully complete the work contained in the Plans and Special Provisions.

Long-lead Items

CMS Equipment -- The CMS Manufacturer working on this project is Vermac. BATA has already procured the CMS panels, controllers and communications cabling for installation at each project site as part of this contract. The Contractor shall coordinate with BATA and work closely with Vermac to ensure successful pick-up, delivery, installation, integration and testing of all CMS equipment provided on this project.

CMS Cabinets -- BATA has also already procured the CMS cabinets as specified herein and shown on the Plans for installation at each project as part of this contract. The Contractor shall coordinate with BATA on the pick-up and delivery of all CMS cabinets for this project to the project site.

The Contractor shall be fully responsible for all installation, integration and testing of all CMS cabinets, cabinet subsystems, components, equipment, as specified herein.

The Contractor shall be fully responsible for furnishing, installing, integrating and testing all CMS equipment racks as shown in the Plans and specified herein.

Contractor Scope of Work

The Contractor's scope of work shall include; but not be limited to:

Installation, integration and testing of all CMS panels working closely with the CMS Manufacturer for mounting of the new CMS panels onto Toll Plaza canopies and/or within existing sign enclosures, new CMS controllers in existing and/or new CMS cabinets and CMS communications cabling running from the CMS controller to the CMS panel. ***CMS panels, CMS controllers and CMS cabling will be provided by BATA to the Contractor for this project. Upgraded CMS control software will be provided by the CMS Manufacturer.***

Installation, integration, and testing of all new CMS cabinets. ***CMS cabinets will be provided by BATA to the Contractor for this project;***

Coordinate with BATA on the pick-up and safe transport from a local project storage site to their respective project location the following equipment and components; CMS cabinets, CMS panels, CMS controllers, and CMS cabling. All other materials and equipment shall be provided by the Contractor;

Furnishing, installation, integration, and testing of all CMS cabinet components, materials and equipment as required, associated with the CMS and indicator light control subsystems as specified herein and shown on the Plans;

Upgrading of existing CMS cabinets and cabinet equipment, components and configuration as shown on the Plans and specified herein;

Furnishing, installation, integration, and testing of all CMS equipment racks and rack equipment, components and materials as required, associated with the CMS and indicator light control subsystems as specified herein and shown on the Plans;

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- Provide complete support and work closely with the CMS Manufacturer in the installation, integration, and testing of existing CMS workstations provided with upgraded CMS control software with the new and existing CMS controllers and panels;
- Furnishing, installation, integration, and testing of new and/or upgraded CMS system communications network equipment and CMS controllers including; Ethernet switches, etc. as required;
- Furnishing, installation, splicing, termination, and testing of all fiber optic cable, fiber optic enclosures, patch panels, FDU, connectors, etc. as required, for the CMS system;
- Furnishing and installation of all communications and electrical pull boxes/junction boxes, etc., as required;
- Furnishing, installation and testing of all structured cabling as required at the Plaza Admin Building as shown in the Plans and specified herein;
- Furnishing, installation and testing all upgraded and/or new electrical service equipment and electrical cabling required for the CMS system and all termination, grounding and bonding as required for this system. The Contractor shall coordinate and work closely with the Caltrans for electrical work required on this project;
- Furnishing, installation and testing of all Indicator Light cabling, termination blocks and all other required components and materials as required and specified herein and shown in the Plans;
- Retrofitting, upgrading, and/or modifying existing Traffic Indicator Lights located on the toll plaza canopy above each toll lanes as specified herein and shown on the Plans;
- Complete and documented testing of all CMS and indicator light control system features and capabilities and communications network components, and infrastructure including all fiber optic cable as specified herein;
- Preparing complete Project Documentation of all CMS and indicator light control system and communications network equipment and infrastructure, including CMS cabinets, and other CMS and Indicator Light Control system equipment as specified herein;
- Providing standard warranties (unless otherwise noted) as specified herein; and
- Provide Spare Parts and Materials for the CMS system communications network and infrastructure and Indicator Light Control system as specified herein. The Contractor shall indicator the spare part inventory being provided as part of their bid proposal.

Contractor Minimum Work Qualifications

To be considered for this project, the Contractor submitting a proposal for this project must demonstrate in their bid proposal that they and/or their sub-contractor(s) meet the minimum qualifications described below. The Contractor shall submit the information and references. Reference data shall include current name and address of organization, and the current name and telephone number of an individual from the organization who can be contacted to verify system

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type, performance, and operations, as well as date of system installation. Failure to furnish the references and information will be sufficient reason for rejection of the Contractor's proposal.

Key Personnel – The Contractor shall include experienced key personnel and depth of staff resources to perform the work activities, including testing, training, and maintenance of equipment associated with this Contract. Within 10 days of Notice of Award, the Contractor shall submit resumes for the on-site Field Supervisor/Project Manager for review and approval by the Engineer.

Field Crews and Equipment – The Contractor shall include experienced field crews to perform all work activities specified herein within the specified schedule. *The Contractor shall submit a list of the proposed key field crew personnel within 7 calendar days of Notice of Award.*

System Experience – The Contractor team shall include similar experience (minimum 3 years) with the types of systems, communications network, and controls to be provided under this contract. The Contractor shall demonstrate their relevant experience as part of their bid proposal. At a minimum, the Contractor shall have experience working with fiber optic networks, Ethernet-based systems, CMS panels and controllers, lighting / remote control systems, electrical systems, etc. as required for this project.

Attention is directed to SC-23 Progress Schedule. The schedule is a critical item on this project and the Contractor shall show how they propose to be able to successfully complete all work including all punch list items are complete and approved, all documentation and training are complete, and the system has been fully tested and is operational.

CODES AND STANDARDS

All work performed on this project shall conform to Section 86-1.02 "Regulations and Code" and the following codes, standards and guidelines as applicable:

California Administrative Code, Title 24, Part 3, "Basic Electrical Regulations."

Caltrans TEES

National Fire Protection Association (NFPA) standards

Insulated Power Cable Engineering Association No. A-61-402, NEMA WC-5, "Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy," shall apply to high voltage cable and 600V class conductors.

National Electrical Code (NEC)

National Electrical Safety Code (NESC)

BISCI – Building Industry Consulting Service International Telecommunications Distribution Methods Manual and Appendices

National Electrical Manufacturers Association (NEMA)

Underwriters' Laboratories (UL) installation requirements for Lightning Protection Systems and components, the Electrical Testing Laboratories (ETL)

National Electrical Testing Association (NETA)

American National Standards Institute (ANSI)

American Society for Testing and Materials (ASTM)

Institute of Electrical and Electronics Engineers (IEEE)

Electronic Industries Alliance (EIA) / Telecommunications Industry Association (TIA)
including, but not limited to the following;

All applicable codes of governing jurisdictions

Unless specified, all standards used for this project shall be the latest edition available effective on the start of this work.

COST BREAKDOWN – BID PROPOSAL REQUIREMENTS

All work and materials indicated on the Plans and as specified herein including, but not limited to; conduit, junction boxes, CMS cabinets, CMS equipment racks, new electrical panels, CMS panels and associated controllers, CMS communications network equipment, fiber optic cabling and patch panels, CMS communications cabling, CMS electrical cabling, Indicator Light relays, switches, LED indicator status lights, breakers, cabling, and indicator light console, bulb changes, illuminated control push buttons, removal and disposal of equipment and materials as shown on the Plans, and all associated materials, mounting hardware and parts, etc. to provide a completed system will be measured on a Lump Sum basis.

The Contractor's bid price shall include furnishing, project management, installing, termination, integration, and coordination as required, shop drawings, testing, training, and documentation as required in accordance with these Special Provisions, Plans and applicable Caltrans Standards, Specifications, and requirements.

The Contractor is responsible to carefully review each of the Bridge Plaza plans, perform field reviews as needed and/or required as well as review of these Special Provisions to determine specific quantities and equipment and materials required for each project site.

The Contractor shall provide equipment and material cut-sheets for all the listed components at a minimum for review and approval prior to procurement and installation of said item. Nothing shall be ordered or installed until review and approval by the Engineer has been provided. The Contractor shall factor in a minimum of 5 calendar days for review of each submittal package. This review time shall be included into their proposed project schedule.

The Contractor shall provide a cost break-down of bid pricing as part of their overall bid price proposal. The sum of the amounts for the work units listed in the cost breakdown must equal the lump sum price bid for the bid item. This break-down shall include as a minimum bid pricing of major proposed equipment, materials and services (including descriptions, estimated quantities, bid pricing as described below) for each Bridge Plaza (i.e., Antioch, Richmond-San Rafael,

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Carquinez, San Mateo-Hayward, Dumbarton, San Francisco-Oakland Bay Bridge) for the following:

CMS panels, CMS controllers and CMS serial communications cabling – BATA to provide, Contractor to pick-up, install, integrate and test. Contractor shall provide installation only pricing for these components as specified herein and shown on the Plans.

CMS (Tunnel) Cabinet – BATA to provide cabinet (shell only with cabinet lights, fans, and locks) to Contractor, Contractor to provide all other required components and materials, install, integrate and test all cabinet equipment, components and materials. Contractor shall provide installation only pricing for these components as specified herein and shown on the Plans.

CMS (Field) Cabinet – same as above

CMS Equipment Racks – Type 2 (small - fit under desk) and Type 3 (full size). Contractor shall provide F&I pricing for these components as specified herein and shown on the Plans.

CMS Cabinet and Equipment Rack Components -- Contractor shall provide all other required components and materials, install, integrate and test all cabinet equipment, components and materials. Contractor shall provide F&I pricing for these components as specified herein and shown on the Plans.

Conduit – Type 1, Type 2, Type 4. Contractor shall provide F&I pricing for these components as specified herein and shown on the Plans.

Junction boxes (Type 1, Type 2, Type 3) – electrical and communications. Contractor shall provide F&I pricing for these components as specified herein and shown on the Plans.

Indicator light control system – breakers (1/2-amp, 2-amp), cabinet indicator light relays, LED indicator status lights, Class 3 transformers, illuminated push button switches, flashing dual-color LED bulbs for canopy, indicator light control panel, toll booth LED box, Indicator light cabling, wiring termination blocks. Contractor shall provide F&I pricing for these components as specified herein and shown on the Plans.

Fiber optic cabling, fiber patch panels, FDU, fiber duplex cables. Contractor shall provide F&I pricing for these components as specified herein and shown on the Plans.

Hardened Managed Ethernet switch – Minimum 14 port (10/100 Base-T/TX) + 2 port (100 Base-FX) fiber. Contractor shall provide F&I pricing for these components.

CMS Workstation (Antioch only) – CMS manufacturer to provide upgraded CMS control software. Contractor shall provide F&I pricing for these components as specified herein and shown on the Plans.

Electrical service panelboards (upgrades), electrical conductors, electrical breakers, terminations, grounding, bonding and electrical TVSS. Contractor shall provide F&I pricing for these components.

Testing and Integration pricing

Training pricing

Spare Parts as specified herein. Contractor shall provide furnish only pricing for these components.

WARRANTIES AND GUARANTEES

All installed equipment, materials and parts furnished shall be new, of the latest model, and fabricated under high quality standards.

Manufacturers' warranties and guaranties supplied with materials shall be delivered to the Engineer prior to acceptance of the project.

The Engineer shall be furnished with a certification stating that all installed equipment, parts, and material are covered by a warranty. Company contact information and warranty dates shall be clearly shown.

Any new and/or upgraded software provided shall include appropriate license. All pricing for any required or needed licensing shall be included as part of the bid price.

The warranty period shall begin upon Final Acceptance of the project as specified herein.

MATERIALS

General

All new and required materials and conduit work shall meet the following requirements as applicable. The proposed conduit plan as shown in the Plans, attempts to maximize to the extent possible, existing conduit. The Contractor as part of their review and bid pricing shall attempt to use existing conduit and junction boxes wherever possible. The Contractor shall be ultimately responsible for overall system performance. Contractor shall be responsible for field verifying any existing conduit and/or junction boxes to be used on this contract prior to pulling new cable through them. Any damage to new or existing cable shall be the responsibility of the Contractor to repair at no additional cost to BATA.

Conduit provision and installation shall conform to the requirements of Section 86 of the Standard Specifications except as noted in these Special Provisions.

As required and as shown in the Plans, conduit to be installed in the Utility tunnel shall be Type 1 (rigid steel) unless otherwise specified. Type 2 conduit (rigid steel, PVC coated) shall be used for all above ground or exposed locations. Type 4 (flexible) conduit shall be used for transition locations as shown on the Plans.

Conduit sizes shown on the Plans and specified in the Standard Specifications and these Special Provisions are referenced to metallic type conduit. No deviation from the conduit size shown on the Plans will be permitted without written permission from the Engineer.

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When a standard coupling cannot be used for joining conduit, a UL listed threaded union coupling conforming to the provisions in Section 86-2.05C, "Installation," of the Standard Specifications, or a concrete-tight split coupling, or concrete-tight set screw coupling shall be used.

Conduit routing as shown on the Plans is approximate and the Contractor shall be responsible for all required field review and coordination to determine final and exact conduit routing as approved by the Engineer.

No reducing couplings shall be permitted in any run. All conduit bends and sweeps, except factory bends, shall have a radius of not less than six (6) times the inside diameter of the conduit.

Exposed conduits shall be installed parallel or at right angle to the center of line of column or beams.

All conduits entering panel boards and junction boxes shall be secured by lock nuts and insulated bushing at the end of conduit.

Any conduit ends terminating (stubbed) in pull boxes and/or installed through Tunnel walls shall be sealed with a slip on weather-tight cap until cable is installed. When caps are removed, conduit ends shall be provided with approved conduit bushings.

Conduit stubs, caps, exposed threads and all standard screw joints shall be painted with zinc rich paint or an equal rust preventative paint.

Conduit shall be routed to avoid any existing obstruction / utility whenever possible, as shown on the Plans, the standard specifications, these Special Provisions, and as directed by the Engineer.

In the event an existing utility or other system is damaged by the Contractor's work, the repair shall be at the Contractor's expense.

Pull ropes for use when installing cables in conduit shall be provided in all installed conduit and shall consist of a flat woven, lubricated, soft-fiber polyester tape with a minimum tensile strength of 1800 lbf and shall have printed sequential measurement markings at least every meter.

Where applicable, conduits shall be installed in groups in parallel, vertical or horizontal runs and at elevations that avoid unnecessary offsets.

Single conduit runs shall be supported by using one hole pipe clamps. Where conduits run horizontally on walls in damp or wet locations, conduit shall be installed with "clamp backs" to space conduit off the surface.

Multiple conduit runs shall be supported with construction conduit channel (channel struts) as required secured to the structure and/or wall or ceiling as shown on the Plans. Conduits shall be fastened to the construction conduit channel with compatible pipe clamps.

Type 1 and/or Type 2 conduits shall be securely fastened to cabinets using 2 locknuts and specified insulating metallic bushing. All conduit entries into the cabinets shall be

completely sealed and weather-tight. Conduit terminations at exposed weatherproof enclosures and boxes shall be made watertight using specified hubs.

Conduit penetrations through walls, ceilings and/or floors shall be non-shrinking water-tight sealed using materials and procedures compliant with Caltrans standards, NEC and local fire code requirements. The Contractor shall submit to the Engineer for review and approval the sealing materials as well as the sealing manufacturer's recommended installation procedures for review and approval.

All attachment components and materials (channel struts, fittings, anchor bolts, etc.) for non-exposed locations shall be made with hot-dipped galvanized steel and conform to provisions in Section 751.03, "Miscellaneous Bridge Metal."

For all exposed locations the Contractor shall utilize 316 stainless steel or plastic coated conduit (PCC) components and materials (screws, bolts, lock washers, etc.) as approved by the Engineer.

All bolts, screws, etc. over traffic and overhead shall be double nuts with lock washers.

Communications Conduit (Above Ground)

At the location shown on the Plans, where communication conduits are exposed to the elements, Type 2 conduit shall be used and shall conform to the details shown on the Plans, and to these Special Provisions.

Communication conduit (walls, structural uprights, etc.) shall include any required excavation, installation of the conduit with any required conduit hangers, channel struts, cradles, straps, and miscellaneous iron and steel, and placing sand and slurry cement backfill.

The Contractor must insure minimum bending radius as recommended by the conduit, and cable manufacturer.

Conduit components shall include compatible fittings, adapters, expansion joints, and factory bends at nominal radii for the conduit size installed as recommended by the conduit manufacturer.

Conduit hanger assemblies shall consist of a concrete clevis plate or embedded steel welded linked eye rods, an adjustable steel yoke, a cast iron conduit roller, a steel roller rod, anchor bolts, conduit clamps, and hex nuts. Parts shall be galvanized. The conduit hanger assembly shall be suitable for the type and size of conduit installed and shall conform to the provisions in Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications.

All Type 1 and 2 conduit mounted on interior and exterior walls shall use conduit struts and clamps. All conduit mounted on structures shall use stainless steel straps as shown on the Plans.

Mechanical wedge anchors for mounting conduits to concrete walls or structures shall have a 1.25-inch embedding maximum. The drilled holes for embedding shall be a maximum

of 1.4-inch deep. The only exception to these drilled hole and embedding depths will be as approved by the Engineer.

Type 4 Flexible conduit shall be used for transitioning from a Junction Box to the CMS panel and other locations as shown in the Plans.

Anchorage devices shall be corrosion resistant including; toggle bolts, screws, bolts, machine screws, expansion shields, and expansion anchors and inserts.

Conduit Sealing Plugs

Unless otherwise noted, all conduits shall have their ends sealed with commercial preformed plugs which prevent the passage of gas, dust and water into these conduits. Sealing plugs shall be installed within a cabinet and/or tunnel entry as installed.

Sealing plugs shall be removable and reusable. Plugs sealing conduit, conductor or cable shall be the split type that permits installation or removal without removing conductors or cables.

To provide suitable sealing between the varying size cables and the plugs, split neoprene or silicone adapting sleeves, used singularly or in multiples, shall be inserted within the body of the plugs.

Sealing plugs used to seal fiber optic conduit shall be capable of withstanding a pressure of 5 psi.

A sealing plug that seals an empty conduit shall have an eye or other type of capturing device (on the side of the plug that enters the conduit) to attach onto the pull rope, so the pull rope will be easily accessible when the plug is removed.

Channel Struts and Fittings

Channel struts shall support all conduits and junction boxes.

Conduit shall be supported at every 5 feet interval or as required by the NEC and the Standard Specifications for the given conduit size whichever is more stringent.

These channel struts shall be fixed on the wall by use of embedded anchor and bolt as shown in the Plans.

All channel struts and fittings shall be made with hot-dipped galvanized steel and conform to provisions in Section 751.03, "Miscellaneous Bridge Metal." For all exposed locations the Contractor shall utilize stainless steel or plastic coated conduit (PCC) components and materials as approved by the Engineer.

All screws and bolts and all other exposed metallic parts shall be stainless steel.

JUNCTION BOXES

Junction box types, locations and sizes are shown on the Plans. All electrical and communications junction boxes provided on this project shall meet the following minimum

requirements, as required. The Contractor shall field verify sizes and as needed recommend alternative junction box sizes for the specific application.

NEMA Type 4X Continuous Hinge Junction Box

NEMA Type 4X continuous hinge junction box shall conform to the following:

Junction box size shall be as shown in the Plans.

Junction boxes shall be constructed from Type 5052 H-32 aluminum minimum 0.08-inch thick.

Junction boxes seams shall be continuously welded and grounded smooth, no holes or knockouts.

Door and body stiffeners shall be provided in larger enclosure.

Rolled lip around three sides of door and all sides of enclosure opening shall exclude liquids and contaminants.

Stainless steel door clamp assembly shall assure watertight seal.

Door shall be easily removed by pulling stainless steel continuous hinge pin.

Data pocket shall be high impact thermoplastic.

The door shall be equipped with a Corbin #2 lock or as required by Engineer. Two (2) keys shall be provided for each field cabinet. The doors shall also be pad-lockable.

Panel screws shall be stainless steel.

Tapped pads shall be provided for mounting optional panels.

Oil-resistant gasket and adhesive shall be used.

NEMA Type 4X Screw Cover Junction Box

NEMA Type 4X screw cover junction box shall conform to the following:

Junction box size shall be as shown in the Plans.

Junction boxes shall be constructed from cast aluminum with no welded seams or sharp corners.

Captivated cover screws shall be stainless steel.

Cover screws shall be placed outside sealed area.

Two to four grounding screws shall be located on the enclosure back-wall.

Oil-resistant and O-ring gasket shall have tongue and groove construction.

Threaded internal bosses shall be provided for mounting optional panels, rails and other components.

Mounting holes shall be provided in corners outside of gasketed area.

Finish shall be ANSI 61 (RAL 7042) gray paint inside and out.

Panel shall be unpainted zinc-plated steel.

ELECTRICAL SERVICE

The Contractor shall furnish, install, terminate and test all CMS communications and electrical cabling for this project. Contractor shall provide new circuit breakers and modify existing panels as shown on the Plans. The design intent is for all CMS panels and cabinets once this project is complete to be under Plaza UPS / Generator back-up power service. The Contractor shall furnish and installed electrical equipment that meet the following minimum requirements:

Conductors and Wiring shall conform to Section 86-2.08, "Conductors," Section 86-2.09, "Wiring," in the Standard Specifications and these Special Provisions.

All power conductors shall be copper and rated 600 volt, Type THHN, 90 degree C.

Electrical shall meet the following requirements:

Splices shall be insulated by "Method B".

Heat shrinkable tubing will not be allowed.

The minimum insulation thickness, at any point for Type USE, RHH or RHW wire shall be 1.0 mm for conductor sizes No. 14 to No. 10, inclusive, and 1.3 mm for No. 8 to No. 2, inclusive.

The minimum insulation thickness, at any point, for Type THW and TW wires shall be 0.69 mm for conductor sizes No. 14 to No. 10, inclusive, 1.02 mm for No. 8, and 1.37 mm for No. 6 to No. 2, inclusive.

Signal cable shall not be used.

Circuit breakers shall be the cable-in/cable-out type, mounted on non-energized clips.

Circuit breakers shall be mounted vertically with the up position of the handle being the "ON" position.

Circuit breakers used as service disconnect shall have a minimum interrupting capacity of 42,000A, RMS, for 120/240VAC services.

New electrical panel shall meet all Caltrans standards and requirements as well as the NEC and meet the following requirements:

Panel spaces shall be equipped with provision for future circuit breakers.

Enclosure shall be provided with stretcher-leveled steel door and trim of code thickness, complete with concealed butt hinges'

Provide combination spring catch and lock on inside edge of door trim.

Hard drawn copper bus bars, minimum 98% conductivity silver or tin plated joints.

Metal frame holder with clear plastic, transparent cover for schedule

Provide 40 degree C ambient compensated circuit breakers.

Finish inside and out with two coats of manufacturer's standard paint.

Fiber optic, CMS serial control communications and jumper/patch cables are provided for elsewhere in these Special Provisions.

BONDING, GROUNDING AND SURGE PROTECTION

Bonding and grounding shall conform to the provisions in Section 86-2.10, "Bonding and Grounding," of the Standard Specifications and these Special Provisions.

All CMS cabinets, equipment racks, and CMS panels shall be grounded through the use of equipment ground "green" conductor to the building ground system. All metal parts, conduits, etc. of electrical system shall be bonded together.

Equipment bonding and grounding conductors are required in conduits, except when the conduits contain fiber optic cable only. Unless otherwise noted on Plans, a #8 AWG minimum, bare copper wire shall run continuously in circuits. The bonding wire size shall be increased to match the circuit breaker size in conformance with the Code, or shall be as shown on the Plans.

As required, bonding of Type 1 metallic conduits in metal junction boxes shall be by means of bonding bushings and bonding jumpers connected to the bonding wire running in the conduit system.

Provide grounding bushings at all conduit terminations at electrical panels and ground with insulated stranded copper conductor to electrical panel ground bus.

Except as otherwise specified, the complete electrical installation including the neutral conductor, metallic conduits, raceways, boxes, cabinets and equipment shall be permanently and effectively grounded in accordance with all code requirements, whether or not such connection are specifically shown or specified.

All conduit entries into a CMS cabinet or equipment rack shall utilize Myers type hub or approved equivalent with ground bushings for bonding the cabinet to the grounding system. All grounding work shall be according to the NEC and CEC.

The Contractor shall ensure that each CMS panel and CMS cabinet is provided with complete CMS system grounding and transient voltage surge suppression (TVSS) protection for all equipment and infrastructure as specified herein. The Contractor shall work with the CMS Manufacturer to ensure that all CMS equipment is protected and grounded. The minimum grounding and TVSS requirements are as follows:

The Contractor shall thoroughly review the existing toll plaza building system and electrical ground system and TVSS for all communications and electrical (power) feeds to be used on this project. It is the Contractor's responsibility to ensure that all CMS system equipment, cabinets,

and subsystems are adequately protected. The CMS controllers already have built surge protection for the communications interface.

It shall be the responsibility of the Contractor to field review and upgrade / modify all existing communications and electrical surge protection and grounding subsystems associated with the proper and safe operations of the equipment installed on this project as required and/or needed.

All grounding shall as required by the National Electrical Code (NEC) and according to the Caltrans Electrical Code (CEC) and Standard Specifications. The more stringent requirement will be enforced.

The Contractor shall ground each CMS panel to an earth ground system using an earth ground lug that is electrically bonded to the CMS panel enclosure/housing near the power entrance location. The Contractor shall provide the materials and services needed to properly earth ground the CMS panel to an earth ground system (either existing or to be installed under this Contract). The Contractor shall submit details on how CMS panels and equipment will be grounded for review and approval by the Engineer.

Any metallic conductors of any type leaving/entering the CMS cabinet shall be provided with TVSS prior (if not already protected) to terminating on any equipment in the CMS cabinet.

All equipment for this project shall be protected from surges and spikes with TVSS devices. All copper cables shall be terminated in a primary surge protector block. All cable pairs, as applicable, shall be terminated on surge protector block(s). The grounding lug of all surge protector blocks shall be bonded to a single point ground bus bar.

Minimum electrical TVSS requirements for CMS system shall include the following:

Power: provide TVSS at the cabinets and CMS panel electrical panel for 120/240V, single phase, 3 wire plus ground that meets the following minimum requirements:

Acceptable TVSS products include; Liebert Corporation and AC Data Systems. Others may be proposed for review and approval by the Engineer.

Rated for a service entrance or electrical panel

Internal over-current protection 200kAIC

Protection modes L-N, L-G, N-G

Maximum UL pass trough voltage, L-N, L-G, N-G 400 V

Surge energy capability, 10/1000 μ s, total 5000 joules

Component response time 1 nanosecond (ns)

Operating temperature: -25°F to 170°F

All TVSS devices shall be U.L. listed (UL 1449, UL 497, 497A, 497B, etc., as appropriate) and bonded to the same single-point ground point. All TVSS provided shall be Deutsche Institute von Normen (DIN) rail mounted or as approved by the Engineer.

All new CMS equipment racks and/or cabinets ground bus bar shall be bonded with a minimum of a #6 AWG, green insulated ground wire from the ground bus bar to the cabinet ground system or as approved by the Engineer.

Connect the ground bus bar to the electrical panel and connect the ground wire to ground lug. All jumpers shall be short as possible with no “loops”.

All grounding and bonding shall be in accordance with NEC, NESC and ANSI/TIA/EIA-607 as applicable and/or required. The Contractor shall label grounding and bonding equipment and connections per ANSI/TIA/EIA-606A.

The more stringent grounding, surge and lightning protection requirement when comparing these Special Provisions with those recommended by the equipment manufacturers and service provider shall be implemented.

NUMBERING ELECTRICAL EQUIPMENT

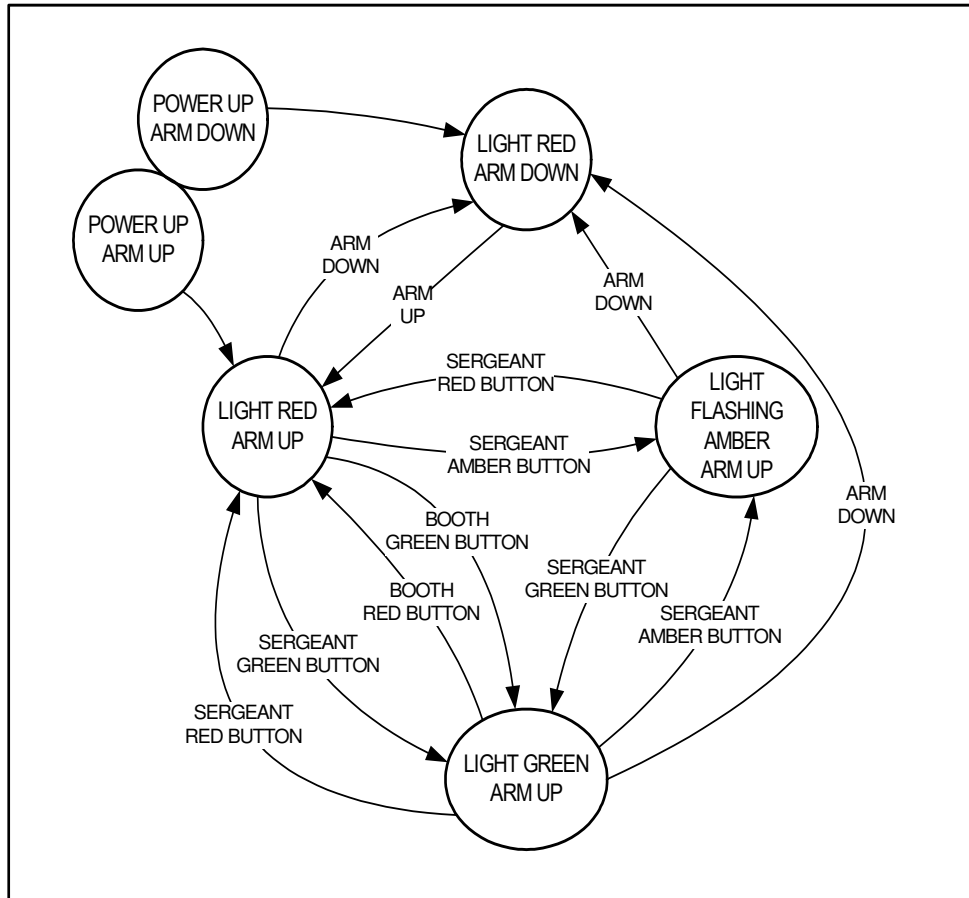
All components including conduits, junction boxes, cabling, equipment, and cabinets shall be clearly numbered or labeled with proper tags, name plates, and I.D. labels that fully meet Caltrans standards as approved by the Engineer. Labels shall be easily read and understood (i.e., white lettering over black plastic background) as approved by the Engineer.

Self-adhesive reflective numbers and edge sealer shall be Contractor-furnished. The numbers and edge sealer shall be placed as directed by the Engineer. Where new numbers or labels are to be placed on existing or relocated equipment, the existing numbers or labels shall be removed. Reflective numbers or labels shall be applied to a clean surface. Only the edges of the numbers or labels shall be treated with edge sealer.

LANE INDICATOR LIGHTS

The Contractor shall modify the existing Indicator Lights, the Indicator Lights wiring and the Indicator Lights control functionality as shown on the Plans and as specified herein. Existing Traffic Indicator Lights are located above the toll lanes on the canopy as shown in the Plans. The purpose of the Indicator Light Control System is to allow the Toll Sergeant to set the Indicator Light on the canopy to either RED, GREEN or FLASHING AMBER states when the lane barrier gate arm is raised (up). In addition, the Indicator Light Control System shall allow the toll booth collector to set the Indicator Light on the canopy to either RED or GREEN when the lane barrier gate arm is raised (up). When the lane barrier gate arm is down the Indicator Light on the canopy shall always be in the RED state. At power up the Indicator Light shall be RED with either the arm up or is down (see Light Indicator State Diagram below).

The Indicator Light Control System shall also provide RED and GREEN indication status to the CMS controller input terminal block (located on the back of the CMS controller). The Indicator Light Control System shall use power limited circuits (as defined by NEC) to power the canopy lights as well as all control and light indications.



Indicator Light State Diagram

The Indicator Light Control System is to be implemented by using control cables, relays, switches, indicator LED lights, transformer, breakers and terminal blocks.

As shown in the Plans, the indicator light control cables are broken into three (3) control cable groups: 1) INDICATOR LIGHT CANOPY (ILC), 2) INDICATOR LIGHT BOOTH (ILB), and 3) INDICATOR LIGHT PANEL (ILP). Each control cable group will include several multi-conductor cables, one per each lane. The ILC cables will run from new and/or existing CMS cabinets and/or CMS Equipment Racks to each Indicator Light on the canopy over each toll lane. The ILB cable will run from the CMS Equipment Rack / CMS Cabinet to each Toll Booth. The ILP cable will run from the CMS Equipment Rack / CMS cabinet to the Indicator Light Control Panel in the Sergeant's Room. The Indicator Light Control panel shall be installed at the Sergeant's Room (see Plans). All control cables entering the CMS Equipment Rack / CMS cabinet shall be terminated on mounted terminal blocks.

Equipment Requirements

All equipment and material furnished shall be rated for used in Class 3 power limited circuits as defined by the NEC

All of the control cables shall meet the following requirements:

Belden 5506UE or approved equivalent

Shall be bare cooper conductors

Minimum insulating voltage rating of 300 VAC

Minimum temperature rating of 75 °C

PVC Jacket and insulation

Color code: 1=Black, 2=Red, 3=White, 4=Green, 5=Brown, 6=Blue, 7=Orange, 8=Yellow.

Shall not be twisted pairs.

All relays shall meet the following requirements:

Shall be 120 VAC General Electric model CR420H or approved equivalent

Shall be double pole double trough (DPDT) type.

Coil shall operate between 80 to 120 VAC

Coil maximum current consumption 25 milli-amps.

Coil contact minimum current capacity at 120 VAC shall be 1 amp.

Shall be socket mountable. (Contractor shall include socket)

Panel push buttons shall meet the following requirements:

Shall be momentary (self resetting).

Contact minimum current capacity at 120 VAC shall be 0.5 amp minimum.

Include 120 VAC LED illumination with the appropriate color designation (i.e. red, green or amber)

For Red indication, the button shall be either DPDT or DPST normally close

For Green and Flashing Amber indication, the button shall be DPDT or one SPST normally close and one SPST normally open.

Toggle switch shall meet the following requirements:

Shall be DTDP

Contact minimum current capacity at 120 VAC shall be 0.5 amp minimum.

Indicator LED lights (inside push button or stand alone) located at the Switch Console Panel, CMS cabinets, and toll booths shall meet the following requirements:

Light Emitting Diode (LED) lamps bright enough for daylight viewing at have a minimum all around viewing angle from center of 80 degrees.

Maximum current consumption of 20 miliamps.

Operate within 80 to 135 VAC

Terminal Blocks shall mountable terminal blocks rated for a minimum of 5 amps.

Isolation Transformer shall be a 1:1, 120VAC, 100Watt transformer rated for Class 3 power supply per NEC.

All breakers shall be 120 VAC and amp rated as called for in the Plans.

Lanes were new CMS panel are to be installed, the Contractor shall modify the existing Green Indicator Lights. The Green Indicator Light at those lanes shall be equipped with a dual Green/Amber Bulb with flashing capabilities meeting the following minimum requirements:

The dual green/flashing amber system shall be the same as currently provided on existing lanes with CMS panels:

Support both Amber and Green color indication on a standard 12" signal head housing

Meet all ITE and Caltrans requirements for LEDs for this type of application. All equipment and materials proposed for this work shall be submitted for review and approval by the Engineer before procurement and/or manufacturing

Rated for a minimum of 20 million Flashes

Manufactured using all solid state components

Shall meet NEMA TS-1 Flasher requirements

Operate within 80 to 135 VAC

Lanes were new CMS panel are to be installed, the Contractor shall modify the existing Red Indicator Lights as specified herein.

Manufactured using LEDs

Be the same as currently provided on existing lanes with CMS panels

Meet applicable Caltrans requirements

Assembly and Installation Requirements

The Contractor shall assemble the light indicator control system meeting the following requirements:

The Indicator Light Booth cable, Indicator Light Canopy cable and the Indicator Light Panel cable shall be terminated on wiring terminal blocks at the Indicator Light Cabinet Drawers and at the Indicator Light Switch Console Panel.

Cables coming into the Indicator Light Cabinet Drawer shall be secured and prevent any movement of the cables at the wiring terminal blocks

The contractor shall submit for review and approval shop drawings of the Indicator Light Cabinet Drawer, Indicator Light Switch Console Panel, and the Toll Booth Indicator Switch LED Box. The shop drawings shall meet the following requirements:

Shall include layout drawings at scale that show:

- a. Equipment labels (TB1, TB2, Relay 1, Relay 2 etc)
- b. Terminal block positions (i.e. 1, 2, etc)
- c. Wiring lines, with wire colors
- d. Switch location with switch terminations
- e. Relays locations with relay terminal locations
- f. Lamps locations with lamp terminations

Shall include logical drawings that show:

- a. All components (i.e. terminal blocks, relay, etc)
- b. All connection with wire colors and terminal numbers

All components installed at the bottom of the drawer shall be label (i.e. terminal block relays)

All components installed at the bottom of the drawer shall label all terminations.

All drawers shall look the same and be wired the same for every CMS cabinet and equipment rack.

REMOVING AND SALVAGING EQUIPMENT

The Contractor shall coordinate closely with the Engineer on any and all removal and disposal of materials and/or equipment as indicated in the Plans.

As directed by the Engineer, all salvaged or removed materials and/or equipment shall be hauled to Caltrans Maintenance Station at 30 Richard Street, San Francisco, CA 94134, (415) 330-6509 and stockpiled. The Contractor shall provide the equipment, as necessary, to safely unload and stockpile the material. A minimum of three (3) working days' notice shall be given prior to delivery.

Any BATA salvaged materials and/or equipment shall be delivered to BATA at a location as directed by BATA. A minimum of three (3) working days' notice shall be given prior to delivery.

CMS PANELS AND COMMUNICATIONS CABLING

The Contractor shall install, integrate and test the CMS panels and associated CMS controllers and CMS communications (serial control) cables working closely with the CMS Manufacturer. CMS panels, controllers and communications cabling have already been procured under a purchase order by BATA.

The Contractor shall coordinate with BATA and the CMS Manufacturer on pick-up and pre-installation testing as required of all CMS equipment to be installed.

CMS Panels

The CMS Panels and CMS Workstation Software to be used on this project will be furnished by BATA. The CMS panel, CMS controller and CMS workstation control software are developed and/or manufactured by VerMac and will consist of 8-foot x 4-foot LED CMS panels capable of displaying one (1) to two (2) rows of 9-inch high characters with up to twelve (12) characters on a single line. Each sign panel weighs approximately 400lbs or less and draws less than 200 watts power.

At the San Francisco Oakland Bay Bridge only, three (3) additional CMS panels will be furnished which consist of larger panels approximately 17-foot x 4-foot panels weighing approximately 700 lbs each.

Location, configuration, mounting and attachment details are shown in the Plans.

CMS Communications Cable

The CMS Communications (Comm) Cable shall connect each CMS controller located in the CMS cabinet or CMS equipment rack to each CMS panel as shown in the Plans. This RS-422/485 serial communications cable will be provided to the Contractor by the BATA / CMS Manufacturer as specified herein. It is expected that a standard configuration will be provided consisting of a minimum of one 4-twisted pair cable for each CMS panel.

The cable shall be similar to Belden cable No. 9844 or equivalent meeting the following requirements:

Consisting of 4-pair, individually dual shielded pairs under single jacket

Low capacitance (< 15pF/ft)

The Contractor may use Category 5e cable meeting the UTP network patch cord specifications in these Special Provisions to provide these required serial connections.

Color Code shall conform to the following:

1st pair—White/Blue Stripe, Blue/White Stripe

2nd pair—White/Orange Stripe, Orange/White Stripe;

3rd pair—White/Green Stripe, Green/White Stripe,

4th pair—White/Brown Stripe, Brown/White Stripe.

Serial cable shall be United Wire and Cable Co., Inc.; Consolidated Wire and Cable; or equivalent.

Cable spools shall be of sufficient length to allow cables to be installed without splices.

FIBER OPTIC CABLE AND EQUIPMENT

The fiber optic cable and supporting equipment provided on this Contract shall conform to the details on the Plans and meeting the following minimum requirements:

Definitions

Active Component Link Loss Budget. -- The active component link loss budget is the difference between the average transmitter launch power (in dBm) and the receiver maximum sensitivity (in dBm).

Backbone -- Fiber cable that provides connections between the toll plaza building and the CMS cabinets or splice vaults. The term is used interchangeably with "trunk" cable.

Connector -- A mechanical device used to align and join two fibers together to provide a means for attaching to and decoupling from a transmitter, receiver, or another fiber (patch panel).

Connectorized -- The termination point of a fiber after connectors have been affixed.

Connector Module Housing (CMH) -- A patch panel used to terminate single-mode fibers with most common connector types. It may include a jumper storage shelf and a hinged door.

Couplers -- Devices that mate fiber optic connectors to facilitate the transition of optical light signals from one connector into another. They are normally located within FDUs, mounted in panels. They may also be used un-mounted, to join two simplex fiber runs.

Distribution Cable -- Fiber cable that provides connections between field cabinets. Drop cables are typically spliced into a distribution cable.

Drop Cable -- Fiber cable that provides connections between a distribution cable and a field element/device. Typically these run from a splice vault to a splice tray within a field cabinet. Drop cables are of the same construction as outside plant cable. The term "breakout cable" is used interchangeably with drop cable.

End-to-End Loss -- The maximum permissible end-to-end system attenuation is the total loss in a given link. This loss could be the actual measured loss, or calculated using typical (or specified) values. The Contractor should use typical values to calculate the end-to-end loss for a proposed link. This number will determine the amount of optical power (in dB) needed to meet the System Performance Margin.

Fan Out Termination -- Permits the branching of fibers contained in an optical cable into individual cables and can be done at field locations; thus, allowing the cables to be connectorized or terminated per system requirements. A kit provides pullout protection for individual bare fibers to support termination. It provides three layers of protection consisting of a Teflon inner tube, a dielectric strength member, and an outer protective PVC jacket. Fan out terminations shall not be used for more than 6 fibers. Using a patch panel would be appropriate.

Fiber Distribution Frame (FDF) -- A rack mounted system that is usually installed in the toll plaza building that may consist of a standard equipment rack, fiber routing guides, horizontal jumper troughs and Fiber Distribution Units (FDU). The FDF serves as the termination and interconnection of passive fiber optic components from cable breakout, for connection by jumpers, to the equipment.

Fiber Distribution Unit (FDU) -- An enclosure or rack mountable unit containing both a patch panel with couplers and splice tray(s). The unit's patch panel and splice trays may be integrated or separated by a partition.

FOTP -- Fiber optic test procedure(s) as defined by TIA/EIA standards.

Jumper -- A short cable, typically one meter or less, with connectors on each end, used to join active network equipment or components with the patch panel.

Light Source -- Portable fiber optic test equipment that, when coupled with a power meter, is used to perform end-to-end attenuation testing. It contains a stabilized light source operating at the wavelength of the system under test.

Link -- A passive section of the system, the ends of which are connectorized. A link may include splices and couplers. For example, a video link may be from a fiber optic transmitter to a fiber optic receiver.

Loose Tube Cable -- Type of cable construction in which fibers are placed in buffer tubes to isolate them from outside forces (stress). A flooding compound or material is applied to the interstitial cable core to prevent water migration and penetration. This type of cable is primarily for outdoor applications.

Mid-span Access Method -- Description of a procedure in which fibers from a single buffer tube are accessed and spliced to an adjoining cable without cutting the unused fibers in the buffer tube, or disturbing the remaining buffer tubes in the cable.

Optical Time Domain Reflectometer (OTDR) -- Fiber optic test equipment similar in appearance to an oscilloscope that is used to measure the total amount of power loss in a fiber optic cable between two points. It provides a visual and printed display of the losses associated with system components such as fiber, splices, and connectors.

Optical Attenuator -- An optical element that reduces the intensity of a signal passing through it.

Patchcord -- A term used interchangeably with "jumper".

Patch Panel -- A precision drilled metal frame containing couplers used to mate two fiber optic connectors.

Pigtail -- A short optical fiber permanently attached to a source, detector, or other fiber optic device.

Power Meter -- Portable fiber optic test equipment that, when coupled with a light source, is used to perform end-to-end attenuation testing. It contains a detector that is sensitive to light at the designed wavelength of the system under test. Its display indicates the amount of optical power being received at the end of the link.

SMFO -- Single-mode Fiber Optic Cable.

Splice -- The permanent joining of two fiber ends using a fusion splicer.

Splice Closure -- An environmentally sealed container / enclosure used to organize and protect splice trays. The container allows splitting or routing of fiber cables from multiple locations. Normally installed in a splice vault.

Splice Module Housing (SMH) -- A unit that stores splice trays as well as pigtails and short cable lengths. The unit allows splitting or routing of fiber cables to or from multiple locations.

Splice Tray -- A container used to organize and protect spliced fibers.

Splice Vault -- An underground container used to house excess cable and splice closures.

System Performance Margin -- A calculation of the overall "End to End" permissible attenuation from the fiber optic transmitter (source) to the fiber optic receiver (detector). The system performance margin should be at least 6dB. This includes the difference between the active component link loss budget, the passive cable attenuation (total fiber loss), and the total connector/splice loss.

General Specifications

Type A cable shall include 36 single mode fibers.

Type D cable shall include 12 single mode fibers.

All fiber optic cable on this project shall be from the same manufacturer, who is regularly engaged in the production of this material.

The cable shall be qualified as compliant with RUS Federal Rule 7NTR1755.900.

Fiber Characteristics

Each optical fiber shall be glass and consist of a doped silica core surrounded by concentric silica cladding. All fibers in the buffer tube shall be usable fibers, and shall be sufficiently free of surface imperfections and occlusions to meet the optical, mechanical, and environmental requirements of these Special Provisions. The required fiber grade shall reflect the maximum individual fiber attenuation, to guarantee the required performance of each and every fiber in the cable.

The coating shall be a dual layered, UV cured acrylate. The coating shall be mechanically or chemically strippable without damaging the fiber.

The cable shall comply with the optical and mechanical requirements over an operating temperature range of -40°F to +158°F. The cable shall be tested in accordance with EIA-455-3A (FOTP-3), "Procedure to Measure Temperature Cycling Effects on Optical Fiber, Optical Cable, and Other Passive Fiber Optic Components." The change in attenuation at extreme operational temperatures (-40°F to +158°F) for single-mode fiber shall not be greater than 0.20 dB/km, with 80 percent of the measured values no greater than 0.10dB/km. The single-mode fiber measurement is made at 1550 nm.

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For all fibers the attenuation specification shall be a maximum attenuation for each fiber over the entire operating temperature range of the cable.

Single-mode fibers within the finished cable shall meet the requirements in the following table:

Fiber Characteristics Table	
Parameter	Characteristic
Type	Step Index
Core diameter	8.3 μm (nominal)
Cladding diameter	125 μm ± 1.0 μm
Core to Cladding Offset	≤ 0.8 μm
Coating Diameter	250 μm ± 15 μm
Cladding Non-circularity defined as: [1-(min. cladding dia \div max. cladding dia.)] x 100	$\leq 1.0\%$
Proof/Tensile Test	345 Mpa, min.
Attenuation: (-40(C to +70(C)	
@850 nm	N/A
@1300 nm (MM)/1310 nm (SM)	≤ 0.4 dB/km
@1550 nm	≤ 0.3 dB/km
Attenuation at the Water Peak	≤ 2.1 dB/km @ 1383 ± 3 nm
Bandwidth:	
@ 850 nm	N/A
@ 1,300 nm (MM)/1310 nm (SM)	N/A
Chromatic Dispersion:	
Zero Dispersion Wavelength	1301.5 to 1321.5 nm
Zero Dispersion Slope	≤ 0.092 ps/(nm ² *km)
Maximum Dispersion:	≤ 3.3 ps/(nm*km) for 1285 – 1330 nm < 18 ps/(nm*km) for 1550 nm
Cut-Off Wavelength	< 1250 nm
Numerical Aperture (measured in Accordance with EIA-455-47)	N/A
Mode Field Diameter (Petermann II)	9.3 ± 0.5 μm at 1310 nm 10.5 ± 1.0 μm at 1550 nm

Color Coding

In buffer tubes containing multiple fibers, each fiber shall be distinguishable from others in the same tube by means of color-coding according to the following:

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1. Blue (BL)	7. Red (RD)
2. Orange (OR)	8. Black (BK)
3. Green (GR)	9. Yellow (YL)
4. Brown (BR)	10. Violet (VL)
5. Slate (SL)	11. Rose (RS)
6. White (WT)	12. Aqua (AQ)

Buffer tubes containing fibers shall also be color-coded with distinct and recognizable colors according to the same table listed above for fibers.

These colors shall be targeted in accordance with the Munsell color shades and shall meet EIA/TIA-598 "Color Coding of Fiber Optic Cables."

The color formulation shall be compatible with the fiber coating and the buffer tube filling compound, and be heat stable. It shall not fade or smear or be susceptible to migration and it shall not affect the transmission characteristics of the optical fibers and shall not cause fibers to stick together.

Cable Construction

The fiber optic cable shall consist of, but not be limited to, the following components:

Buffer Tubes shall meet the following requirements:

Clearance shall be provided in the loose buffer tubes between the fibers and the inside of the tube to allow for expansion without constraining the fiber. The fibers shall be loose or suspended within the tubes. The fibers shall not adhere to the inside of the buffer tube.

The loose buffer tubes shall be extruded from a material having a coefficient of friction sufficiently low to allow free movement of the fibers. The material shall be tough and abrasion resistant to provide mechanical and environmental protection of the fibers, yet designed to permit safe intentional "scoring" and breakout, without damaging or degrading the internal fibers.

Buffer tube filling compound shall be a homogeneous hydrocarbon-based gel with anti-oxidant additives and used to prevent water intrusion and migration. The filling compound shall be non-toxic and dermatologically safe to exposed skin. It shall be chemically and mechanically compatible with all cable components, non-nutritive to fungus, non-hygroscopic and electrically non-conductive. The filling compound shall be free from dirt and foreign matter and shall be readily removable with conventional nontoxic solvents.

Each buffer tube shall contain 12 strands of fiber

Central Member shall meet the following requirements:

Buffer tubes shall be stranded around a central member by a method, such as the reverse oscillation stranding process that will prevent stress on the fibers when the cable jacket is placed under strain.

The central member which functions as an anti-buckling element shall be a glass reinforced plastic rod with similar expansion and contraction characteristics as the optical fibers and buffer tubes. To ensure the proper spacing between buffer tubes during stranding, a symmetrical linear overcoat of polyethylene may be applied to the central member to achieve the optimum diameter.

Fillers rods may be included in the cable to maintain the symmetry of the cable cross-section. Filler rods shall be solid medium or high-density polyethylene. The diameter of filler rods shall be the same as the outer diameter of the buffer tubes.

Completed buffer tubes shall be stranded around the over-coated central member using stranding methods, lay lengths and positioning such that the cable shall meet mechanical, environmental and performance specifications. A polyester binding shall be applied over the stranded buffer tubes to hold them in place. Binders shall be applied with sufficient tension to secure the buffer tubes to the central member without crushing the buffer tubes. The binders shall be non-hygroscopic, non-wicking (or rendered so by the flooding compound), and dielectric with low shrinkage.

The cable core interstices shall contain a water blocking material, to prevent water ingress and migration. The water blocking material shall be either a polyolefin based compound which fills the cable core interstices, or an absorbent polymer, which fills voids and swells to block the ingress of water. The flooding compound or material shall be homogeneous, non-hygroscopic, electrically non-conductive, and non-nutritive to fungus. The compound or material shall also be nontoxic, dermatologically safe, and compatible with all other cable components.

Tensile Strength Member shall be provided by high tensile strength aramid yarns and fiberglass which shall be helically stranded evenly around the cable core and shall not adhere to other cable components.

The cable shall contain at least one ripcord under the jacket for easy sheath removal.

The Outer Jacket shall be free of holes, splits, and blisters and shall be medium or high-density polyethylene (PE), or medium density cross-linked polyethylene with minimum nominal jacket thickness of $1 \text{ mm} \pm 0.076 \text{ mm}$. Jacketing material shall be applied directly over the tensile strength members and water blocking material and shall not adhere to the aramid strength material. The polyethylene shall contain carbon black to provide ultraviolet light protection and shall not promote the growth of fungus.

The jacket or sheath shall be marked with the manufacturer's name, the words "Optical Cable", the number of fibers, "SM", as applicable, year of manufacture, and sequential measurement markings every meter. The actual length of the cable shall be within $-0/+1$ percent of the length marking. The marking shall be in a contrasting color to the cable jacket. The height of the marking shall be $2.5 \text{ mm} \pm 0.2 \text{ mm}$.

General Cable Performance Specifications

Acceptable fiber optic vendors include Corning Cable Systems (Siecor), Alcatel and Lucent. The Contractor shall submit to the Engineer the original documents for fiber optic cable test compliance, the fiber optic manufacture catalog, and samples and test results.

The fiber optic cable shall withstand water penetration when tested with a one meter static head or equivalent continuous pressure applied at one end of a one meter length of filled cable for one hour. No water shall leak through the open cable end. Testing shall be done in accordance with EIA-455-82 (FOTP-82), "Fluid Penetration Test for Fluid-Blocked Fiber Optic Cable."

A representative sample of cable shall be tested in accordance with EIA/TIA-455-81 (FOTP-81), "Compound Flow (Drip) Test for Filled Fiber Optic Cable". No preconditioning period shall be conducted. The cable shall exhibit no flow (drip or leak) at 70 80°C as defined in the test method.

Crush resistance of the finished fiber optic cables shall be 220 N/mm applied uniformly over the length of the cable without showing evidence of cracking or splitting when tested in accordance with EIA-455-41 (FOTP-41), "Compressive Loading Resistance of Fiber Optic Cables". The average increase in attenuation for the fibers shall be ≤ 0.10 dB at 1550 nm (single-mode) for a cable subjected to this load. The cable shall not exhibit any measurable increase in attenuation after removal of load. Testing shall be in accordance with EIA-455-41 (FOTP-41), except that the load shall be applied at the rate of 3 mm to 20 mm per minute and maintained for 10 minutes.

The cable shall withstand 25 cycles of mechanical flexing at a rate of 30 ± 1 cycles/minute. The average increase in attenuation for the fibers shall be ≤ 0.20 dB at 1550 nm (single-mode) at the completion of the test. Outer cable jacket cracking or splitting observed under 10X magnification shall constitute failure. The test shall be conducted in accordance with EIA-455-104 (FOTP-104), "Fiber Optic Cable Cyclic Flexing Test," with the sheave diameter a maximum of 20 times the outside diameter of the cable. The cable shall be tested in accordance with Test Conditions I and II of (FOTP-104).

The cable shall withstand 20 impact cycles, with a total impact energy of 5.9 N•m. Impact testing shall be conducted in accordance with TIA/EIA-455-25B (FOTP-25) "Impact Testing of Fiber Optic Cables and Cable Assemblies." The average increase in attenuation for the fibers shall be < 0.20 dB at 1550 nm for single-mode fiber. The cable shall not exhibit evidence of cracking or splitting.

The finished cable shall withstand a tensile load of 2700 N without exhibiting an average increase in attenuation of greater than 0.20 dB (single-mode). The test shall be conducted in accordance with EIA-455-33 (FOTP-33), "Fiber Optic Cable Tensile Loading and Bending Test." The load shall be applied for one-half hour in Test Condition II of the EIA-455-33 (FOTP-33) procedure.

Packaging and Shipping Requirements

A 20-foot section of fiber-optic cable and documentation of compliance to the required specifications shall be submitted to the Engineer for approval prior to ordering the material.

Attention is directed to "Fiber Optic Testing," elsewhere in these Special Provisions.

The completed cable shall be packaged for shipment on reels. The cable shall be wrapped in weather and temperature resistant covering. Both ends of the cable shall be sealed to prevent the ingress of moisture.

Each end of the cable shall be securely fastened to the reel to prevent the cable from coming loose during transit. Four meters of cable length on each end of the cable shall be accessible for testing.

Each cable reel shall have a durable weatherproof label or tag showing the manufacturer's name, the cable type, the actual length of cable on the reel, the Contractor's name, the Contract number, and the reel number. A shipping record shall also be included in a weatherproof envelope showing the above information and also include the date of manufacture, cable characteristics (size, attenuation, bandwidth, etc.), factory test results, cable identification number and any other pertinent information.

The minimum hub diameter of the reel shall be at least thirty times the diameter of the cable. The fiber optic cable shall be in one continuous length per reel with no factory splices in the fiber. The minimum reel length shall be approximately 3.5 miles. Each reel shall be marked to indicate the direction the reel should be rolled to prevent loosening of the cable.

Installation procedures and technical support information shall be furnished at the time of delivery.

Labeling

The Contractor shall label all fiber optic cabling in a permanent consistent manner in accordance with the Caltrans **Fiber Optic Communications System Design Guidelines**, latest version.

Label identification, format and location of labels shall be as directed by the Engineer.

Cable Installation

There shall be no re-use fiber optic cable for the installation.

Installation procedures shall be in conformance with the procedures specified by the cable manufacturer for the specific cable being installed. The Contractor shall submit the manufacturer's recommended procedures for pulling fiber optic cable at least 20 working days prior to installing cable. Mechanical aids may be used provided that a tension measuring device

and a break-away swivel are placed in tension to the end of the cable. The tension in the cable shall not exceed 2225 N, or the manufacturer's recommended pulling tension, whichever is less.

During cable installation, the bend radius shall be maintained at a minimum of twenty times the outside diameter. The cable grips for installing the fiber optic cable shall have a ball bearing swivel to prevent the cable from twisting during installation.

The fiber optic cable shall be installed using a cable pulling lubricant recommended by the fiber optic cable or the conduit manufacturer, and a pull tape conforming to the provisions described under "conduit" elsewhere in these Special Provisions. Contractor's personnel shall be stationed at each splice vault and pull box through which the cable is to be pulled to lubricate and prevent kinking or other damage.

The fiber optic cable shall be installed without splices except where specifically allowed on the Plans.

Unless shown or provided otherwise, only fiber optic cable shall be installed in each conduit. Pulling a separate fiber optic cable into a spare duct to replace damaged fiber will not be allowed.

At the Contractor's option, the fiber may be installed using the air blown method. If integral conduit/duct is used, the conduit/duct splice points or any temporary splices of conduit/duct is used for installation must withstand a static air pressure of 110 PSI.

The fiber installation equipment must incorporate a mechanical drive unit or pusher, which feeds cable into the pressurized conduit/duct to provide a sufficient push force on the cable, which is coupled with the drag force created by the high-speed airflow. The unit must be equipped with controls to regulate the flow rate of compressed air entering the duct and any hydraulic or pneumatic pressure applied to the cable. It must accommodate longitudinally ribbed, or smooth wall conduits/ducts from nominal 0.6-inch to 2-inch inner diameter. Mid assist or cascading of equipment must be for the installation of long cable runs. The equipment must incorporate safety shutoff valves to disable the system in the event of sudden changes in pneumatic or hydraulic pressure.

The equipment must not require the use of a piston or any other air capturing device to impose a pulling force at the front end of the cable, which also significantly restricts the free flow of air through the inner duct. It must incorporate the use of a counting device to determine the speed of the cable during installation and the length of the cable installed.

Splicing

Field splices shall be done either in splice vaults or cabinets as shown on the Plans. All splices in splice vaults shall be done in splice trays, housed in splice closures. All splices in cabinets shall be done in splice trays housed in patch panels.

Unless otherwise specified, fiber splices shall be the fusion type. The mean splice loss shall not exceed 0.07 dB per splice. The mean splice loss shall be obtained by measuring the loss through the splice in both directions and then averaging the resultant values.

All splices shall be protected with a metal reinforced thermal shrink sleeve.

The mid-span access method shall be used to access the individual fibers in a cable for splicing to another cable as shown on the Plans. Cable manufacturers recommended procedures and approved tools shall be used when performing a mid-span access. Only the fibers to be spliced may be cut. All measures shall be taken to avoid damaging buffer tubes and individual fibers not being used in the mid-span access.

The individual fibers shall be looped one full turn within the splice tray to avoid micro bending. A 1.7-inch minimum bend radius shall be maintained during installation and after final assembly in the optical fiber splice tray. Each bare fiber shall be individually restrained in a splice tray. The optical fibers in buffer tubes and the placement of the bare optical fibers in the splice tray shall be such that there is no discernable tensile force on the optical fiber.

The Contractor will be allowed to splice a total of 12 percent of all fibers to repair any damage done during mid-span access splicing without penalty. The Contractor shall be assessed a fine of \$300.00 for each additional and unplanned splice. Any single fiber may not have more than 2 unplanned splices. If any fiber requires more than 2 unplanned splices, the entire length of fiber optic cable must be replaced at the Contractor's expense.

Splice Trays

Splice trays must accommodate a minimum of 12 fusion splices and must allow for a minimum bend radius of 1.7-inch. Individual fibers must be looped one full turn within the splice tray to allow for future splicing. No stress is to be applied on the fiber when it is located in its final position. Buffer tubes must be secured near the entrance of the splice tray to reduce the chance that an inadvertent tug on the pigtail will damage the fiber. The splice tray cover may be transparent.

Splice trays in the splice closure shall conform to the following:

- Accommodate up to 24 fusion splices

- Place no stress on completed splice within the tray

- Stackable with a snap-on hinge cover

- Buffer tubes securable with channel straps

- Accommodate a fusion splice with the addition of an alternative splice holder

- Be labeled after splicing is completed.

Only one single splice tray may be secured by a bolt through the center of the tray in the fiber termination unit. Multiple trays must be securely held in place as per the manufacturer's recommendation.

Passive Cable Assemblies and Components

The fiber optic assemblies and components shall be compatible components, designed for the purpose intended, and manufactured by a company regularly engaged in the production of material for the fiber optic industry. All components or assemblies shall be best quality, non-corroding, with a design life of at least 20 years.

The cable assemblies and components manufacturer shall be ISO-9001 registered.

Fiber Optic Cable Terminations, Tight Buffer Cable, Jumpers and Pigtails

Jumpers -- Simplex or duplex design as required on the Plans. Duplex jumpers shall be of duplex round cable construction, and shall not have zipcord (siamese) construction. All jumpers shall be a length as required in the Plans with a minimum of 3 feet of spare cable coiled and secured as directed by the Engineer. All fiber cables shall be installed and secured to avoid stress and allow orderly routing.

Pigtails – Shall be of simplex (one fiber) construction, in 900-μm tight buffer form, surrounded by aramid for strength, with a PVC jacket with manufacturer identification information, and a nominal outer jacket diameter of 0.12-inch. Single-mode simplex cable jackets shall be yellow in color. All pigtails shall be factory terminated and tested and at least one meter in length.

The outer jacket of duplex jumpers shall be colored according to the single-mode color (yellow) specified above. Inner simplex jackets shall be contrasting colors to provide easy visual identification for polarity.

Connectors -- Shall be of the ceramic ferrule SC type for Single Mode Fiber Optic (SMFO). Indoor SC connector body housings shall be either nickel-plated zinc or glass reinforced polymer construction. SC connector body housing shall be glass reinforced polymer.

The associated coupler shall be of the same material as the connector housing.

All fiber optic connectors shall be the 2.5-mm connector ferrule type with Zirconia Ceramic material with a PC (Physical Contact) pre-radiused tip.

The SC connector operating temperature range shall be -40°F to +158°F. Insertion loss shall not exceed 0.4 dB for single-mode, and the return reflection loss on single-mode connectors shall be at least -35 dB. Connection durability shall be less than a 0.2 dB change per 500 mating cycles per EIA-455-21A (FOTP-21). All terminations shall provide a minimum 222 N pull out strength. Factory test results shall be documented and submitted to the Engineer prior to installing any of the connectors. Single-mode connectors shall have a yellow color on the body or boot that renders them easily identifiable.

Field terminations shall be limited to splicing of adjoining cable ends or cables to SC pigtails.

All connectors shall be factory-installed and tested. There shall be no installation of connectors in the field.

All unmated connectors shall have protective caps installed.

Fiber Optic Cable Spare Coil

The Contractor shall provide spare fiber optic cable coiled up in Junction Boxes and FDUs to facilitate future maintenance and/or relocation or the addition of CMS cabinets within the tunnel. The Contractor shall indicate locations and quantity of coiled up fiber optic cable to the Engineer for review and approval.

Fiber Optic Cable Testing

The Contractor shall provide comprehensive fiber optic cable testing which is in accordance with the Caltrans *Fiber Optic Communications System Design Guidelines*, latest version. The Contractor shall calculate and test fiber losses per the requirements in the Guidelines.

All testing results shall be fully documented and submitted to the Engineer for review.

CMS COMMUNICATIONS NETWORK EQUIPMENT

The Contractor shall furnish, install, integrate and test CMS communications network equipment consisting of hardened Ethernet Switches connected in a ring topology as shown on the Plans. The intent is for the all new and upgraded CMS controllers to be integrated into the existing CMS communications network for all Bridge Plaza except for Antioch which will be installing a new CMS communications network.

Furnish and install the equipment consisting of but not limited to a hardened Layer-2 Ethernet switch, AC Power Adapter, cabling, and all other accessories and incidentals.

This Ethernet switch shall meet the following minimum requirements:

Minimum of fourteen (14) 10/100 Base-T/TX ports. Each port shall connect via RJ-45 connector.

Switch shall have minimum of two (2) 100 Base-FX fiber ports with the following optical requirements:

The minimum optical budget between transmit and received ports shall be 20dB.

Optical receiver maximum input power level shall not be exceeded. Optical attenuators shall be added as needed. It is the Contractor's responsibility to determine where attenuators are needed and shall be included in the cost of the switch.

Each port shall connect via duplex SC single mode connectors or as directed by the Engineer.

Operate between -30 to +165 degree F, including the power supply.

Operate from 5% to 95% non-condensing humidity

Switch shall be shelf or rack-mountable and fit within one (1) standard rack space (1.75" H).
No shelf mounting of equipment.

Under no circumstance shall any cabinet equipment be laying loose on the bottom of the cabinet. All equipment shall be secured.

Switch PCB (Printed Circuit Board) shall be conformal coated for moisture protection.

Compliance with FCC47 CFR Part 15, Subpart B: 1999 Class A

Meet the IEEE 802.1D (Spanning Tree Protocol) and IEEE 802.1w (Rapid Spanning Tree Protocol) standards.

Support IP unicast and multicast (IGMP v2) and IGMP snooping

Support Communications Interfaces in accordance with IEEE 802.3 Ethernet Standards, IEEE 802.3x and u, and IEEE 802.1X, Port Based Access Control.

Include fault tolerant design with built-in test and failure reporting.

Support IPv4, DiffServ (Quality of Service), and SNMP v1 and v2 (network management).

Provide management capabilities via a serial maintenance/console serial port (local), and Telnet (remote).

The Switch shall accept an input voltage of 100-240VAC 50/60Hz.

Hardened AC power adapter shall be included if necessary to convert the voltage to DC.

Category 5e Patch Cords

Contractor shall provide all required network patch cables as indicated in the Plans. The following are the minimum Cat-5e Patch Cords requirements:

The Cat-5e Patch Cords shall be furnished and installed as needed and/or required.

All patch cords, patch panels and jacks shall be from the same manufacture and shall be Category compliant with ANSI/ANSI/TIA/EIA 568B.2 Category-5e as required.

Shall be factory made; Contractor or vendor assembled patch cords are not permitted

Be round, and consist of eight insulated 22 to 24 AWG, stranded copper conductors, arranged in four color-coded twisted-pairs within a flame-retardant jacket.

Impedance: 100 ohms +14% @ 0.772 to 100 MHz

The mutual capacitance shall be 13.65 pF/ft nominal

Attenuation @ 1 MHz – 2dB /1000 ft; @ 10 MHz – 6.4 dB/1000ft; @ 100 MHz – 20.1 dB/1000ft

Be equipped with modular 8-position plugs on both ends, wired straight through with standards compliant wiring.

Use modular plugs, which exceed FCC CFR 47 part 68 subpart F and IEC 60603-7 specifications, and have 50 micro-inches minimum of gold plating over nickel contacts.

Be available with or without color strain relief boots providing snag proof design. Must meet the flex test requirements of 1000 cycles with boots and 100 cycles without boots.

Manufacturer shall guarantee cords are compatible with Cat-5e links and standard performance requirements.

Shall utilize cable that is UL Verified.

Installation Requirements

All Ethernet switches shall be configured by the Contractor and set-up to operate in a ring type topology with STP/RSTP protocols.

All Ethernet switches shall be installed in accordance with manufacturer's guidelines and requirements.

Provide, as needed, the necessary Cat-5e jumpers and other cabling as needed for a complete and functional installation.

POWER STRIP – IP ADDRESSABLE

The Contractor shall furnish and install Power Strips as shown on the Plans that meet the following minimum requirements:

Shall be rack mountable and be one rack-unit high

Shall include a front mounted ON/OFF switch.

Shall include a resettable 15 Amp breaker.

Be mounted as shown in the Plans to a standard EIA-310 rack cage using four stainless steel EIA mounting screws, two on each side.

Provide a minimum of six (6) NEMA 5-15R outlets. Outlets shall be rear-mounted.

Not hinder the accessibility to the back of all other electrical equipment.

Be remote manageable over the Ethernet network – single user interface.

Include a 100 BASE-TX port.

Be fully manageable and configure through the following remote protocols:

SNMP

RMON

HTTP

Capable of remotely turning ON/OFF each outlet

Measure each outlet current

Contractor shall integrate the power strip into the Ethernet communications network.

All permanently field installed electrical equipment shall be plugged into the power strip.

All power cord lengths for equipment shall be sufficiently long enough to plug into the power strip.

WORKSTATION AND CMS SOFTWARE

For Antioch Bridge (only) as shown in the Plans, the Contractor shall furnish, install, integrate and test a new CMS Workstation that meets the following minimum requirements:

CMS Workstation case shall be a slim-tower type.

Processor shall be Intel® Core™ 2 Duo processor E8400 (6MB L2, 3GHz, 1333FSB) or equivalent.

Operating System Genuine Windows® 7 Professional 64bit as directed by the Engineer.

Monitors shall be 20" LCD flat-panel with VGA port and cable. Minimum resolution of 1920 x 1080 pixels

Optical Drive 16X DVD+/-RW Drive

Memory 4GB Dual Channel DDR2 SDRAM at 800MHz- 4DIMMs

Hard Drive 500GB1 Serial ATA Hard Drive (7200RPM) w/DataBurst Cache

Video Cards ATI Radeon HD 4350 512MB or equivalent

Minimum 104-key keyboard and optical 2-button mouse

One (1) Network Card: 10/100Base-T/TX with RJ-45

One (1) enhanced Parallel Port

Minimum three (3) USB 2.0 ports

Spare expansion slots remaining after installation of all specified boards

Install and configure CMS control software as provided by the CMS Manufacturer. The Contractor shall work with the CMS Manufacturer to load and test this software onto the new CMS workstation.

Other software: Norton Antivirus (latest version) and Internet Explorer (latest version) as directed by the Engineer.

For all other Plaza bridge sites, the Contractor shall work closely with the CMS Manufacturer to install, integrate and test the latest, upgraded CMS software onto existing CMS workstations.

UNINTERRUPTIBLE POWER SUPPLY (UPS)

For Antioch Bridge (only) as shown in the Plans, the Contractor shall furnish, install, integrate and test an UPS for the new CMS Workstation that meets the following minimum requirements:

The Contractor shall provide a UL listed rack mount one (1) Uninterruptible Power Supply (UPS) as the back-up electrical power source for the CMS Workstation and all active electronic and network equipment located in the Equipment Rack as shown on the Plans.

The Contractor shall calculate the UPS load requirements to provide equipment uptime for a minimum of 20 minutes upon loss of power. The Contractor shall submit calculations and proposed UPS units for review and approval by Engineer as specified herein.

The UPS shall work over a voltage range of 82-144VAC.

UPS shall incorporate a minimum of four (4) NEMA 5-15R output connections designed to accommodate a minimum of two (2) power transformers ("wall warts") or as required.

UPS shall provide remote diagnostic/control software.

The UPS shall include an automatic unattended shutdown feature to perform automated shutdown of all system workstations, servers and active equipment after a preset time on battery backup or at low battery.

UPS shall provide transient voltage protection to loads connected to the UPS with a surge rating of at least 320 joules. UPS shall provide full time multi-pole noise filtering: 0.3 percent of less IEEE surge let-through zero clamping response and shall meet UL 1449.

UPS shall be FCC Class B certified.

If UPS is a switching type (not 100 percent on-line), transfer time shall be 4 millisecond or less.

Batteries shall be sealed, non-outgassing type.

CMS CABINET

The CMS cabinets to be used on this project for housing CMS controllers, communications equipment and indicator light control components as required for this project will be provided by BATA to the Contractor.

Each CMS cabinet provided by BATA to the Contractor will be standard traffic rated cabinets equipped with door locks, cabinet lighting and cabinet fans. Two size cabinets will be provided as shown on the Plans as follows: 1) CMS (Tunnel) Cabinet will be a Type 336S type cabinet with approximate dimensions of 48" high x 24" wide x 15" deep (typical) mounted to the Tunnel wall and 2) CMS (Field) Cabinet will be a Type 332/334 type field cabinet ground mounted with approximate dimensions of 66 high x 24" wide x 30" deep (typical).

The Contractor shall be responsible for pick-up, delivery, installing, integrating and testing all CMS cabinets and all cabinet equipment, components and materials inside these cabinets.

The Contractor shall provide, install, and integrate all other cabinet components and materials as specified below.

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All CMS (Tunnel) cabinets shall be mounted to the concrete Tunnel wall using 3/8-inch diameter expansion anchors (minimum total of 4). All CMS (Field) cabinets shall follow standard Caltrans mounting details and specifications.

All CMS (Field) cabinets shall be mounted on a minimum 4-inch concrete pad with anchor bolts to the floor and shall be compliant with standard Caltrans mounting details and specifications. The Contractor shall apply glue down before placement of concrete for pad as approved by the Engineer.

The Contractor shall install all conduit knockouts as required as shown on the Plans. All knockouts shall be completely sealed from water penetration (weatherproof) as approved by the Engineer.

All mounting hardware and brackets suitable for method of installation shall be provided for each CMS cabinet.

Internal component hardware (nuts, bolts, screws, standoffs, fasteners, etc.) shall be fabricated from hot dipped galvanized steel, stainless steel, aluminum, nylon or other durable corrosion-resistant materials suitable for roadway signage applications.

All cabinet equipment as well as the fiber patch (connector) panel and terminal blocks (for indicator light cables) shall be rack mounted in drawers as shown on the Plans. No equipment shall be mounted on a rack mounted shelf. All equipment mounting and cabling inside shall be neat and organized – no equipment shall be laying loose at the bottom of the cabinet or unused;

All components (surge protectors, breakers, relays, etc.) and equipment shall be utilized and active.

Self-grounding rack angles shall meet ANSI, NEC, and BISCII grounding requirements. The Contractor shall ensure that the cabinet is grounded according to code and industry practice and as specified herein.

Provide cable tie down slots within cabinet to facilitate cable management.

The cabinet shall contain a electrical panel and circuit breakers that meet the following minimum requirements and as shown in the Plans:

Short circuit ratings of 22,000 amps and 10,000 amps for the main and branch (sub) circuits, respectively

UL listed

The cabinet electrical panel shall contain a utility GFI outlet circuit consisting of a minimum of one (1) 15-A NEMA 15-R, 120VAC duplex outlet, with ground-fault circuit interrupters.

The cabinet electrical panel shall protect the electronic equipment powered by the panel from power transients. Over voltage protection shall be provided for the electrical panel and shall contain a TVSS device as specified herein, which shall reduce the effect of power line voltage transients and be rated as follows:

Recurrent peak voltage of 212 V.

Energy rating (maximum) of 50 J.

Power dissipation, average of 0.85 W.

Peak current for pulses less than 6 μ s at 2,000 A.

Standby current for 60 Hz sinusoidal at 1mA or less.

The cabinet shall include one (1) earth ground lug that is electrically bonded to the cabinet. The lug shall be installed near the power entrance. The Contractor shall provide the balance of materials and services needed to properly earth ground the CMS panel to an earth ground system as shown on the Plans. All grounding shall conform to the NEC and Caltrans requirements.

All CMS cabinets shall be grounded as specified herein.

All CMS Cabinets will be fed from UPS back-up power service, as shown on the Plans.

Provide any other ancillary materials as required and all necessary mounting hardware as shown in the Plans.

EQUIPMENT RACK

Type 2 Equipment Rack

The Contractor shall furnish and install equipment rack as shown on the Plans meeting the following minimum requirements:

Provide one (1) EIA compliant 19-inch under desk equipment rack with overall dimensions of approximately 25-inch high x 20-inch wide x 20-inch deep.

Provide a rack with 12 useable rack units with 10-32 mounting holes in EIA spacing that will fit under a 24-inch height (bottom side) modular desktop.

All equipment shall be rack mounted.

Provide all necessary hardware for mounting of equipment (i.e., all rack hardware including screws, cable management, etc.).

Minimum weight capacity of 200lbs.

Rear-mounted, 15-amp, eight (8)-outlet (minimum) power strip rigid standoff brackets. Power strip shall accommodate equipment power supplies. Power strip cord shall be SJ or approved equivalent and shall be equipped with a twist-lock plug to match the equipment rack receptacle.

Power surge and over current protection on all outlets shall be provided through the power strip or the UPS.

U.L listed in the U.S.

Product: Acceptable product by Middle Atlantic Products, Raxxess or approved equivalent.

Type 3 Equipment Rack

The Contractor shall furnish and install equipment rack as shown on the Plans meeting the following minimum requirements:

Universal EIA self-supporting EIA aluminum frame: 72-inch H x 20-inch W (approximate).

Conform to EIA/TIA 569A.

EIA standard for 19-inch rack mounted equipment.

Provide a rack-rail with 10-32 mounting holes in EIA spacing in a stand-alone unit.

Fully welded construction, solid sides

Grounding stud installed in base

Finished in a durable black textured powder coat

Rack-rail features cable pass-through openings in face

Minimum 14-gauge steel tops & bottoms, 16-gauge seamless steel sides

Static weight capacity shall be a minimum of 500lbs.

Cable Management: Provide vertical cable management front and rear panels. Front and rear channels shall have removable covers. A horizontal manager shall be provided at the top of the equipment rack, with a minimum height of 1.75-inch high, one (1) rack unit. Horizontal cable management panel shall have front and rear channels.

Grounding: Provide a rack Systems Ground Bus Bar. Hardware shall be provided including #6-32 silicon bronze screws, ground lugs and other mounting hardware.

Rack mounted, 15-amp, IP-addressable power strip as specified herein. Power surge and over current protection on all outlets shall be provided through the power strip or other external TVSS.

Provide all rack shelves as required and shown on the Plans.

Provide a sliding drawer that is an aluminum storage compartment mounted in each frame with the approximate following dimensions: 1.75 in (H) x 16 in (W) x 14 in (D). Ensure the compartment has telescoping drawer guides to allow full extension from the equipment frame upright channels. When extended, the storage compartment shall open to provide storage space for documentation and other miscellaneous items. The sliding drawer/storage compartment shall be of adequate construction to support a weight of 25lb when extended. The top of the storage compartment shall have a non-slip plastic laminate attached which covers a minimum of 90% of the surface area of the top.

Perform all assembly and installation in accordance with the equipment rack manufacturer's recommendations.

All equipment racks shall be grounded as specified herein.

Product: Acceptable rack products by Middle Atlantic, Homaco, Chatsworth, or approved equivalent.

SYSTEM TESTING

The Contractor shall work closely with the CMS Manufacturer, and BATA Toll Operations to provide complete CMS and Indicator Light Control System testing to meet these specifications.

Test Plan and Procedures

The Contractor shall develop and submit to the Engineer within 15 working days after NTP, a test plan for review and approval, which details all testing for all new material, cables, equipment, cabinet, CMS panels, indicator light control system components, etc. based on the Plans and these Special Provisions, the manufacturer's recommended test procedures, and industry standard practices.

The test plan shall include procedures and data forms for the Engineer's review and approval prior to the day the tests are to begin. The test plan shall include the sequence in which the tests will be conducted. The test plan shall have the Engineer's approval prior to any tests.

Three (3) copies of the test plan shall be submitted to the Engineer for approval. The Engineer will review then approves, or disapproves, the test plan within 10 working days. If the Engineer rejects the test plan the Contractor shall submit a revised test plan within 10 working days for review and approval by the Engineer. No testing shall be performed until the Engineer has approved the Contractor's test plan. The tests shall demonstrate that the design and production of new material and cables meet the requirements of these Special Provisions and Plans.

All test results, including results of failed test or re-tests, shall be submitted, and delivered to the Engineer and a copy placed with the equipment at the site. The data forms shall contain all of the data taken, as well as quantitative results for all tests. The data forms shall be signed by an authorized representative (company official) of the Contractor. At least one copy of the data forms shall be sent to the Engineer within 10 working days of the test's conclusion.

The Engineer reserves the right to have representative witness all tests. The results of each test shall be compared with the requirements specified herein. Failure to conform to the requirements of any test shall be counted as a defect, and the equipment shall be subject to rejection by the Engineer. Rejected equipment may be offered again for a retest, provided that all non-compliances have been corrected and retested and evidence thereof submitted to the Engineer. Any delays in performing all these tests may result in the Contractor paying the additional costs of providing the Engineer's representatives for the additional testing time.

The Contractor shall be responsible for providing the test fixtures and test instruments for all the system and fiber optic related tests.

Four (4) tests shall be included in the Test Plan including; 1) Pre-installation Tests, 2) Stand-Alone Tests, 3) Conditional Acceptance Tests and 4) 30-Day Test/Burn-in tests.

Pre-Installation Tests (PIT)

Pre-Installation Tests (PIT) will include testing by the CMS Manufacturer of the CMS panels as part of this Contract, associated controllers and materials, equipment, and cables at the CMS Manufacturer (BATA) storage location within 25 miles of the project site provided under another contract. The PIT will ensure the equipment will power up, operate, and was not damaged during shipment. The Engineer reserves the right to attend any PIT as desired; however, the Contractor shall observe the test and shall submit documentation of the PITs whether the Engineer's representative is present or not.

All active equipment shall be connected to normal operating power, energized and subjected to normal operating conditions for a continuous period of time in the laboratory of not less than 48 hours.

Any material, which fails to meet the requirements of the contract, shall be repaired or replaced and the test shall be repeated until satisfactory. All test results, including results of failed tests or re-tests, shall be submitted and delivered with all material delivered to the site.

Stand Alone Tests (SAT)

After the CMS system components have passed the PIT and have been delivered to the project site, installed and made functional, the Contractor working closely with the CMS Manufacturer shall conduct an approved stand-alone test of the equipment installation at the field site.

The tests shall, as a minimum, exercise stand-alone (non-networked) functional operations of the field equipment with all of the equipment and new CMS cabinet / equipment rack installed. Tests shall include: control of CMS panels via local control from a CMS controller in the CMS cabinet / equipment rack, CMS cabinet subsystems and component tests, diagnostic testing, and visual inspection for damaged or incorrect installation, adjustments, configuration, and measurement of parameters and operating conditions.

The Contractor shall provide a test plan for stand alone testing along with all other test phases specified herein, for the Indicator Light Control System components for each toll lane that is brought on-line. The test plan shall be submitted to the Engineer for review and approval prior to testing.

Fiber Optic Cable Testing

Attention is directed to "Fiber Optic Cable Testing" in these Special Provisions.

Conditional System Acceptance Tests (CAT)

After the successful completion of the Stand-Alone tests and the CMS panels are connected, the signs will be controlled using the CMS workstation from the Toll Plaza Building over the CMS communications network.

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The CMS Manufacturer will work with the Contractor to test the CMS panels from Toll Plaza Building CMS Workstation in a manner equivalent to the normal day-to-day operation of the system. The Contractor shall fully support the CMS Manufacturer during these tests and provide comprehensive tests for the communications network and integration of the various system component and devices as required.

The Conditional System Acceptance Test shall demonstrate that all equipment and materials in the network are in full compliance with all project requirements and fully functional as installed and in final configuration, communicating with and being controlled through the Toll Plaza Building.

CMS data link testing demonstrating complete control of all CMS panels and controllers at the site from the CMS Workstation shall be conducted as part of these tests. The activities shall include verification of each CMS data circuit in the low speed data links, and in the integrated data network. The Contractor shall optimize network configuration parameters for the data system to operate.

The Indicator Light Control System shall be fully tested during this testing period. Operational tests shall be conducted during opening and closing of toll lanes coordinated closely with the Toll sergeant and/or Lieutenant. The system shall demonstrate that when the barrier gate arm is lowered / down the CMS message for that toll lane automatically displays "Lane Closed" with the RED light on. Red LEDs at the Switch Console, CMS cabinet, as well as that toll booth should be lit. Once the barrier gate arm is raised (up) the tests shall demonstrate complete control of the Indicator Lights for that toll lane. Each toll lane shall be fully tested.

Indicator light tests shall be provided by the Contractor to demonstrate and test each of the states in the Indicator Light State Diagram in Section 10-3.09 of these Special Provisions.

Burn-In Period

After the installation of the expanded CMS system and Indicator Light Control System is completed and the successful completion of the Conditional System Acceptance tests, the Contractor working with the CMS Manufacturer and BATA Toll Sergeant and Lieutenant shall coordinate and conduct a 30-calendar day test / burn-in period with the assistance of the Engineer. The CMS system shall operate for 30-calendar days under normal operational conditions. The Engineer will monitor the system during the burn-in period and document any failures.

Final Inspection

Upon successful completion of the overall Burn-in Period, the entire project shall be eligible for Final Inspection. The Final Inspection will be conducted provided the burn-in period has demonstrated the entire system is operating successfully. The Final Inspection shall include but is not limited to;

All installed infrastructure (conduit, junction boxes, CMS cabinets, etc. in support of the CMS System and Indicator Light Control System shall be field inspected and a final field punch list generated.

Monitoring of all CMS System functions including other CMSs on the network at the Toll Plaza Building to demonstrate the overall CMS System is operational.

Monitoring of all Indicator Light Control System functions including control of each toll lane Indicator Light, feedback of light status at each booth and Switch Console Panel, control features and functions of the Switch Console Panel in the Sergeant's Room to demonstrate the overall Indicator Light Control System is operational.

All CMS and Indicator Light Control System components are in their correct final configuration.

Verification that all burn-in punch list items have been completed.

Verification that all final cleanup requirements have been completed.

Approval of final CMS System and Indicator Light Control system as-built documentation.

Final Acceptance

Upon successful completion of the Final Inspection including resolving any final punch list items, Final Acceptance will be defined as when all work and materials provided have been furnished and completely installed and tested by the Contractor with the CMS Manufacturer, and all parts of the work have been approved and accepted by the Engineer and the CMS System has been operated continuously and successfully for 30 calendar days with no more than 3 calendar days downtime due to mechanical, electrical and/or other malfunctions.

Consequences of Test Failures

For any unit fails to pass its test, the unit shall be corrected or another unit substituted in its place and the test repeated. If a unit has been modified as a result of a test failure, a report shall be prepared and delivered to the Engineer prior to shipment of the unit. The report shall describe the nature of the failure and the corrective action taken. If a failure pattern develops for any given unit, The Engineer reserves the right to reject the unit(s) and the Contractor shall be responsible to furnish new re-designed unit(s) as applicable. At the discretion of State, new re-design or modified unit(s) will be required to undergo all testing and submittal requirements. The re-design and/or modification of any unit(s), and testing shall be made without additional cost to the Contracting Authority or extension of the Amendment period.

PROJECT DOCUMENTATION

The Contractor shall submit to the Engineer equipment and material submittals for review and approval prior to any installation.

Catalog Cut Sheets

Within 14 calendar days of NTP the Contractor shall submit final equipment and material Catalog Cut Sheets that meet the following minimum requirements

Submit to the Engineer for approval catalog cut sheets for all proposed materials, equipment and components to be installed. The catalog cut sheets shall include all necessary information to clearly demonstrate that the proposed equipment meets the requirements of these Special Provisions and the Plans. In addition, the equipment cut sheets shall include manufacturer's name, model number, and any other descriptive data as necessary to clearly evaluate the item.

Equipment and materials shall not be ordered or released for fabrication without the approval of submittals by the Engineer.

The review and approval of submittals by the Engineer is based on the information provided in the submittal and the conformance with the design concept of the project. Submittal reviews do not relieve the Contractor of the responsibility for making the overall system conform to the requirements of the contract. Approvals at the submittal stage are always conditional upon demonstration that the equipment is fully compliant with the Contract including compatibility with all other equipment in the system.

No procurement and/or installation of equipment and materials will be permitted until material submittals have been reviewed and approved by the Engineer. Procurement and installation of any equipment or material on this project without Engineer approval is at the Contractor's own risk.

Shop Drawings

Within 20 calendar days of NTP the Contractor shall submit Shop Drawings that meet the following minimum requirements:

Working closely with the CMS Manufacturer, Structure Contractor and the Engineer submit to the Engineer shop drawings and design calculations for the attachment of the CMS panels to the Toll Plaza Canopy face as shown on the Plans.

Also include any other shop drawings including the New CMS Equipment Rack mounting, riser conduit installation and attachment details, and details of other structural elements required for CMS related equipment.

Shop drawings shall be provided for proposed Switch Console for the Indicator Light Control system components. Drawings shall be submitted to the Engineer for review and approval prior to fabrication and installation of the switch control panel.

Contractor shall prepare design plans for conduit routing to each toll booth from the new CMS cabinet to implement the Indicator Light Control System feedback function in each toll booth. Drawings shall be submitted clearly indicating the routing and materials that is being proposed.

Contractor shall prepare a System Expansion Cut-Over plan documenting their plan to install and bring on-line the expanded CMS system along with the Indicator Light Control system minimizing / mitigating any interruption of toll operations. This will be submitted to the Engineer and BATA for review and approval prior to any installation work commencing.

As Built Plans

The Contractor shall submit As Built Plans prior to the end of the project. The As Built Plans shall meet the following minimum requirements:

As-built drawings shall at a minimum include; detailed conduit routing, junction box locations, CMS cabinet location, details of cabinet layout and equipment installation and assemblies, grounding details, electrical panel location and modifications, CMS and Indicator Light Control system and communications network, a list of all materials, components and cabling installed.

The Contractor shall submit As-built Plans per Caltrans procedures and standards. The As-built plans shall be in the same format as the construction plans (Plans) and shall be prepared and delivered to the BATA concurrently with construction in an on-going manner.

MAINTAINING EXISTING ITS AND TOLL SYSTEM ELEMENTS DURING CONSTRUCTION

Existing electrical elements (BATA CMS system, FasTrak ETC system, etc.) located within the project limits shall remain in place, and be protected from damage during construction of this project.

Before work is performed, the Engineer, the Contractor, BATA Toll and Caltrans representatives shall jointly conduct a pre-construction operational status check of all existing electrical and CMS subsystems and Toll elements and each element's communication status with the Caltrans Traffic Management Center (TMC) and/or the respective BATA Plaza Building, including existing ITS/Toll elements that are not shown on the Plans and elements that may be impacted by the Contractor's activities.

Caltrans representatives will certify the ITS elements' location and status, and provide a copy of the certified list of the existing ITS elements within the project limits to the Contractor. The status list will include the operational, defined as having full functionality, and the nonoperational components.

The Contractor shall obtain written approval from the Engineer, at least 72 hours before interrupting existing ITS elements' communication with the TMC and BATA that will result in the elements being nonoperational or off line.

The Contractor shall notify the Engineer at least 72 hours before starting excavation activities.

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If existing ITS/Toll elements shown on the Plans or identified during the pre-construction operational status check are damaged or fail due to the Contractor's activity, where the elements are not fully functional, the Engineer shall be notified immediately.

If the Contractor is notified by the Engineer that existing ITS/Toll elements have been damaged, have failed or are not fully functional due to the Contractor's activity, the damaged or failed ITS/Toll elements, excluding Structure-related elements, shall be repaired or replaced, at the Contractor's expense, within 24 hours.

For a Structure-related element, the Contractor shall install temporary or portable ITS elements within 24 hours. For non-structure-related ITS elements, the Engineer may approve temporary or portable ITS elements for use during the construction activities.

If fiber optic cables are damaged due to the Contractor's activities, the Contractor shall install new fiber optic cables from an original splice point or termination to an original splice point or termination, unless otherwise authorized in writing by the Engineer. Fusion splicing will be required.

The Contractor shall demonstrate that repaired or replaced elements operate in a manner equal to or better than the replaced equipment or as directed by the Engineer. If the Contractor fails to perform required repairs or replacement work, as determined by the Engineer, the State may perform the repair or replacement work and the cost will be deducted from monies due to the Contractor.

An ITS/Toll element shall be considered nonoperational or off line for the duration of time that active communications with the TMC and/or BATA is disrupted, resulting in messages and commands not transmitted from or to the ITS/Toll element.

The Contractor shall provide provisions for replacing existing ITS / Toll elements within the project limits, that were not identified on the Plans or during the pre-construction operational status check that became damaged due to Contractor's activities.

If the pre-construction operational status check identified existing ITS/Toll elements, then the Contractor, the Engineer, and BATA Toll and Caltrans representatives shall jointly conduct a post construction operational status check of all existing ITS/Toll elements and each element's communication status with the TMC and/or BATA.

Caltrans representatives will certify the ITS elements' status and provide a copy of the certified list of the existing ITS elements within the project limits to the Contractor. The status list will include the operational, defined as having full functionality, and the nonoperational components. ITS / Toll elements that cease to be functional between pre and post construction status checks shall be repaired at the Contractor's expense and as directed by the Engineer.

The Engineer will approve, in writing, the schedule for final replacement, the replacement methods and the replacement elements, including element types and installation methods before

repair or replacement work is performed. The final ITS / Toll elements shall be new and of equal or better quality than the existing ITS/Toll elements.

SPARES

The Contractor shall provide the following spare parts to be delivered at a location indicated by the Engineer: The spare parts shall be of the same model and make as the equipment furnished and installed under this Contract.

- Thirty (30) red push button switches
- Thirty (30) green push button switches
- Fifteen (15) amber push button switches
- Sixty (60) red replacement LED lamps for the push button switches
- Sixty (60) green replacement LED lamps for the push button switches
- Thirty (30) amber replacement LED lamps
- Sixty (60) red replacement indicator LED lights
- Sixty (60) green replacement indicator LED lights
- Sixty (60) blue replacement indicator LED lights
- One hundred and twenty (120) amber replacement indicator LED lights
- One hundred and twenty indicator light relays
- Sixty (60) panel mount 0.5 amp breakers
- Sixty (60) DPDT toggle switches
- Two (2) Ethernet switches as specified herein

PAYMENT

Full compensation for Electrical Systems shall be considered as included in the Contract Lump Sum price paid for each bridge and no additional compensation will be allowed therefore.

Standard Plans List

The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. Applicable Revised Standard Plans (RSP) and New Standard Plans (NSP) indicated below are included in the project plans as Standard Plan sheets.

ACRONYMS, ABBREVIATIONS AND SYMBOLS

A10A	Acronyms and Abbreviations (Sheet 1 of 2)
A10B	Acronyms and Abbreviations (Sheet 2 of 2)

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A10C **Symbols (Sheet 1 of 2)**

A10D **Symbols (Sheet 2 of 2)**

**TEMPORARY CRASH CUSHIONS, RAILING AND TRAFFIC
SCREEN**

RSP T1A **Temporary Crash Cushion, Sand Filled (Unidirectional)**

RSP T1B **Temporary Crash Cushion, Sand Filled (Bidirectional)**

RSP T2 **Temporary Crash Cushion, Sand Filled (Shoulder Installations)**

T3 **Temporary Railing (Type K)**

TEMPORARY TRAFFIC CONTROL SYSTEMS

T10 **Traffic Control System for Lane Closure On Freeways and Expressways**

T14 **Traffic Control System for Ramp Closure**

TEMPORARY WATER POLLUTION CONTROL

NSP T62 **Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)**

Appedix B

CONTRACT DRAWINGS / PLANS

DRAWINGS / PLANS ARE SEPARATE FROM THIS DOCUMENT